

False dilemma

Wikipedia

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Chapter 1

False dilemma

A **false dilemma** (also called **false dichotomy**, **false binary**, **black-and-white thinking**, **bifurcation**, **denying a conjunct**, the **either–or fallacy**, **fallacy of exhaustive hypotheses**, the **fallacy of false choice**, the **fallacy of the false alternative**, or the **fallacy of the excluded middle**) is a type of **informal fallacy** that involves a situation in which only limited alternatives are considered, when in fact there is at least one additional option. The opposite of this fallacy is **argument to moderation**.

The options may be a position that is between two extremes (such as when there are shades of grey) or may be completely different alternatives. Phrasing that implies two options (dilemma, dichotomy, **black-and-white**) may be replaced with other number-based nouns, such as a “**false trilemma**” if something is reduced to only three options.

False **dilemma** can arise intentionally, when fallacy is used in an attempt to force a choice or outcome (such as, in some contexts, the assertion that “if you are not with us, you are against us” or the paired questions “If you were to die tonight, where would you spend eternity? Would it be in heaven or in hell?”).

The False dilemma fallacy also can arise simply by accidental omission of additional options rather than by deliberate deception. Additionally, it can be the result of habitual, patterned, black-and-white and/or intensely **political/politicized** thinking whereby a model of **binary (or polar) opposites** is assigned or imposed to whatever regarded object/context, almost automatically--a process that may ignore both complexity and alternatives to more extreme juxtaposed archetypes; **binary opposition** is explored extensively in **critical theory**.

Some **philosophers** and scholars believe that “unless a distinction can be made rigorous and precise it isn't really a distinction.”*[1] An exception is **analytic philosopher John Searle**, who called it an incorrect assumption that produces false dichotomies.*[2] Searle insists that “it is a condition of the adequacy of a precise theory of an indeterminate phenomenon that it should precisely characterize that phenomenon as indeterminate; and a distinction is no less a distinction for allowing for a family of related, marginal, diverging cases.”*[2] Similarly, when two options are presented, they often are, although not always, two extreme points on some spectrum of possibilities; this may lend credence to the larger argument by giving the impression that the options are **mutually exclusive** of each other, even though they need not be. Furthermore, the options in false dichotomies typically are presented as being **collectively exhaustive**, in which case the fallacy may be overcome, or at least weakened, by considering other possibilities, or perhaps by considering a whole spectrum of possibilities, as in **fuzzy logic**.

1.1 Examples

1.1.1 Morton's fork

Morton's fork, a choice between two equally unpleasant options, is often a false dilemma. The phrase originates from an argument for taxing English nobles:

“Either the nobles of this country appear wealthy, in which case they can be taxed for good; or they appear poor, in which case they are living frugally and must have immense savings, which can be taxed for good.”*[3]

This is a false dilemma and a “**Catch-22**”, because it fails to allow for the possibility that some members of the nobility

may in fact lack liquid assets, as well as the possibility that those who appear poor may actually be poor.

1.1.2 False choice

The presentation of a *false choice* often reflects a deliberate attempt to eliminate several options that may occupy the middle ground on an issue. A common argument against **noise pollution** laws involves a false choice. It might be argued that in **New York City** noise should not be regulated, because if it were, the city would drastically change in a negative way. This argument assumes that, for example, a bar must be shut down to prevent disturbing levels of noise emanating from it after midnight. This ignores the fact that the bar could simply lower its noise levels, or install **soundproofing** structural elements to keep the noise from excessively transmitting onto others' properties.

1.1.3 Black-and-white thinking

See also: **Splitting (psychology)**

See also: **Binary opposition**

In psychology, a phenomenon related to the false dilemma is black-and-white thinking. Many people routinely engage in black-and-white thinking, an example of which is someone who categorizes other people as all good or all bad.* [4]

1.2 See also

- Bivalence
- Correlative-based fallacies
- Critical theory
- Degrees of truth
- Half-truth
- Hobson's choice
- Law of excluded middle
- Loaded question
- Love–hate relationship
- Multi-valued logic
- Nolan Chart
- Nondualism
- Obscurantism
- Pascal's Wager
- Perspectivism
- Principle of bivalence
- Rogerian argument
- Sorites paradox
- Strange loop
- Thinking outside the box
- Two-party system

- None of the above
- One-party system
- Show election
- Unreason
- Behaviorism
- Learned helplessness

1.3 References

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- [3] Evans, Ivor H. (1989). *Brewer's Dictionary of Phrase & Fable*, 14th edition, Harper & Row. ISBN 0-06-016200-7.
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1.4 External links

- The Black-or-White Fallacy entry in *The Fallacy Files*

Chapter 2

Affirmative action

Affirmative action or **positive discrimination** ^[1] (known as **employment equity** in Canada, **reservation** in India and **Nepal**, and **positive action** in the UK) is the policy of favoring members of a disadvantaged group who suffer from **discrimination** within a culture. ^[2]^[3]^[4]^[5]

The nature of positive discrimination policies varies from region to region. Some countries, such as **India**, use a quota system, whereby a certain percentage of jobs or school vacancies must be reserved for members of a certain group. In some other regions, specific quotas do not exist; instead, members of minorities are given preference in selection processes.

2.1 Origins

The term “affirmative action” was first used in the United States in **Executive Order 10925**, signed by President **John F. Kennedy** on 6 March 1961, which included a provision that government contractors “take *affirmative action* to ensure that applicants are employed, and employees are treated during employment, without regard to their race, creed, color, or national origin.” ^[6] It was used to promote actions that achieve non-discrimination. In 1965, President **Lyndon B. Johnson** issued **Executive Order 11246** which required government employers to take “affirmative action” to “hire without regard to race, religion and national origin”. This prevented employers from discriminating against members of disadvantaged groups. In 1967, gender was added to the anti-discrimination list. ^[7]

Affirmative action is intended to promote the opportunities of defined minority groups within a society to give them equal access to that of the majority population. ^[8]

It is often instituted for government and educational settings to ensure that certain designated “**minority groups**” within a society are able to participate in all provided opportunities including promotional, educational, and training opportunities. ^[9]

The stated justification for affirmative action by its proponents is that it helps to compensate for past discrimination, persecution or **exploitation** by the ruling class of a culture, ^[10] and to address existing discrimination. ^[11]

2.2 Women

Several different studies investigated the effect of affirmative action on women. Kurtulus (2012) in her review of affirmative action and the occupational advancement of minorities and women during 1973-2003 showed that the effect of affirmative action on advancing black, Hispanic, and white women into management, professional, and technical occupations occurred primarily during the 1970s and early 1980s. During this period, contractors grew their shares of these groups more rapidly than noncontractors because of the implementation of affirmative action. But the positive effect of affirmative action vanished entirely in the late 1980s, which Kurtulus says may be due to the slowdown into advanced occupation for women and minorities because of the political shift of affirmative action that started by President Reagan. Becoming a federal contractor increased white women's share of professional occupations by 0.183 percentage points, or 7.3 percent, on average during these three decades, and increased black women's share by 0.052 percentage points (or by 3.9 percent). Becoming a federal contractor also increased Hispanic women's and black men's share of technical occupations on average by 0.058 percent and 0.109 percentage points

respectively (or by 7.7 and 4.2 percent). These represent a substantial contribution of affirmative action to overall trends in the occupational advancement of women and minorities over the three decades under the study.* [12]

2.3 Quotas

Law regarding quotas and affirmative action varies widely from nation to nation. Caste based quotas are used in **Reservation in India**. However, they are illegal in the United States, where no employer, university, or other entity may create a set number required for each race.* [13]

In 2012, the **European Union** Commission approved a plan for women to constitute 40% of non-executive board directorships in large listed companies in Europe by the year 2020.* [14] In Sweden, the Supreme Court has ruled that “affirmative action” ethnic quotas in universities are discrimination and hence unlawful. It said that the requirements for the intake should be the same for all. The Justice Chancellor said that the decision left no room for uncertainty.* [15]

Unzueta et al. in their study of how believing in affirmative action quotas affects White women's self-image showed that white women who do not think affirmative action benefits personally may derive a self-image benefit from believing that affirmative action entails quotas. Such belief may enable White women to believe that their past achievements were attained despite the influence of discriminatory quota policies while their past failures occurred because of such policies. Study 2: Those who were led to believe that affirmative action entails quotas reported higher state self-esteem relative to those who were informed that affirmation action does not entail this controversial procedure. White women's self-image can benefit from affirmative action quota beliefs so long as they do not think of themselves as beneficiaries of such a policy. But those who are beneficiaries may become motivated to protect their self-image when presented with descriptions of affirmative action that threaten to discount their competence.* [16]

2.4 National approaches

See also: **Reserved political positions**

In some countries that have laws on racial equality, affirmative action is rendered illegal because it does not treat all races equally. This approach of equal treatment is sometimes described as being “**color blind**”, in hopes that it is effective against discrimination without engaging in **reverse discrimination**.

In such countries, the focus tends to be on ensuring equal opportunity and, for example, targeted advertising campaigns to encourage ethnic minority candidates to join the police force. This is sometimes described as “**positive action**.”

2.4.1 Africa

South Africa

See also: **Black Economic Empowerment**

Apartheid The **Apartheid** government, as a matter of state policy, favoured white-owned, especially **Afrikaner**-owned companies. The aforementioned policies achieved the desired results, but in the process they marginalised and excluded black people. Skilled jobs were also reserved for white people, and blacks were largely used as unskilled labour, enforced by legislation including the **Mines and Works Act**, the **Job Reservations Act**, the **Native Building Workers Act**, the **Apprenticeship Act** and the **Bantu Education Act**,* [17] creating and extending the “**colour bar**” in South African labour.* [18] For example, in early 20th century South Africa mine owners preferred hiring black workers because they were cheaper.* [19] Then the whites successfully persuaded the government to enact laws that highly restricted the blacks' employment opportunities.* [19]

Since the 1960s the Apartheid laws had been weakened. Consequently, from 1975 to 1990 the real wages of black manufacturing workers rose by 50 %, that of whites by 1 %.* [20]

The economic and politically structured society during the apartheid ultimately caused disparities in employment, occupation and income within labour markets, which provided advantages to certain groups and characteristics of people. This in due course was the motivation to introduce affirmative action in South Africa, following the end of Apartheid.*[21]

Post-apartheid Employment Equity Following the transition to democracy in 1994, the African National Congress-led government chose to implement affirmative action legislation to correct previous imbalances (a policy known as **Employment Equity**). As such, all employers were compelled by law to employ previously disenfranchised groups (blacks, Indians, and Coloureds). A related, but distinct concept is **Black Economic Empowerment**.*[22]

The **Employment Equity Act** and the **Broad Based Black Economic Empowerment Act** aim to promote and achieve equality in the workplace (in South Africa termed “equity”), by advancing people from designated groups. The designated groups who are to be advanced include all people of colour, women (including white women) and **people with disabilities** (including whites). Employment Equity legislation requires companies employing more than 50 people to design and implement plans to improve the representativity of workforce demographics, and report them to the **Department of Labour**.*[23]

Employment Equity also forms part of a company's **Black Economic Empowerment** scorecard: in a relatively complex scoring system, which allows for some flexibility in the manner in which each company meets its legal commitments, each company is required to meet minimum requirements in terms of representation by previously disadvantaged groups. The matters covered include equity ownership, representation at employee and management level (up to board of director level), procurement from black-owned businesses and social investment programs, amongst others.

The policies of Employment Equity and, particularly, Black Economic empowerment have been criticised both by those who view them as discriminatory against white people, and by those who view them as ineffectual.*[24]*[25]*[26]*[27]*[28]

These laws cause disproportionately high costs for small companies and reduce economic growth and employment.*[20] The laws may give the black middle-class some advantage but can make the worse-off blacks even poorer.*[20] Moreover, the **Supreme Court** has ruled that in principle blacks may be favored, but in practice this should not lead to unfair discrimination against the others.*[20] Yet it is impossible to favor somebody without discriminating against others.*[20]

Affirmative Action Purpose As mentioned previously affirmative action was introduced through the Employment Equality Act, 55 in 1998, 4 years after the end of Apartheid. This act was passed to promote the constitutional right of equality and exercise true democracy. This idea was to eliminate unfair discrimination in employment, to ensure the implementation of employment equity to redress the effects of discrimination, to achieve a diverse workforce broadly representative of our people, to promote economic development and efficiency in the workforce and to give effects to the obligations of the Republic as a member of the International Labour Organisation.*[21]*[29]

Many embraced the Act; however some concluded that the act contradicted itself. The act eliminates unfair discrimination in certain sectors of the national labour market by imposing similar constraints on another.*[21]

With the introduction of Affirmative Action, Black Economic Empowerment (BEE) rose additionally in South Africa. The BEE was not a moral initiative to redress the wrongs of the past but to promote growth and strategies that aim to realize a country's full potential. The idea was targeting the weakest link in economics, which was inequality and which would help develop the economy. This is evident in the statement by the Department of Trade and Industry, “As such, this strategy stresses a BEE process that is associated with growth, development and enterprise development, and not merely the redistribution of existing wealth”.*[30]*[31] Similarities between the BEE and affirmative action are apparent; however there is a difference. BEE focuses more on employment equality rather than taking wealth away from the skilled white labourers.*[30]

The main goal of Affirmative Action is for a country to reach its full potential. This occurrence would result in a completely diverse workforce in economic and social sectors. Thus broadening the economic base and therefore stimulating economic growth.*[32]

Outcomes Once applied within the country, many different outcomes arose, some positive and some negative. This depended on the approach and the view of The Employment Equality Act and Affirmative Action.

Positive: Pre Democracy, the Apartheid discriminated against non-white races, so with affirmative action, the country started to redress past discriminations. Affirmative Action also focused on combating structural racism and racial inequality, hoping to maximize diversity in all levels of society and sectors.*[33] Achieving this would elevate the

status of the perpetual underclass and to restore equal access to the benefits of society.*[21]

Negative: Though Affirmative Action had its positives, negatives arose. A quota system was implemented, which aimed to achieve targets of diversity in a work force. This target affected the hiring and level of skill in the work force, ultimately affecting the free market.*[32]*[33] Affirmative action created marginalization for coloured and Indian races in South Africa, as well as developing and aiding the middle and elite classes, leaving the lower class behind. This created a bigger gap between the lower and middle class, which led to class struggles and a greater segregation.*[29]*[33] Entitlement began to arise with the growth of the middle and elite classes, as well as race entitlement. Many believe that affirmative action is discrimination in reverse. With all these negatives, much talent started to leave the country.*[21] Many negative consequences of affirmative action, specifically the quota system, drive skilled labour away, resulting in bad economic growth. This is due to very few international companies wanting to invest in South Africa.*[33]

With these negative and positive outcomes of Affirmative Action it is evident that the concept of affirmative action is a continuous and learning idea.*[33]

2.4.2 Asia

China

Main article: [Affirmative action in China](#)

There is affirmative action in education for minority nationalities. This may equate to lowering minimum requirements for the National University Entrance Examination, which is a mandatory exam for all students to enter university.*[34]*[35] Some universities would set ratios between ethnic minorities and Han Chinese (the majority group in China at 92%) applicants for their student intake.*[36] Further, minority students enrolled in ethnic minority-oriented specialties are provided with scholarships and/or pay no tuition, and are granted a monthly stipend.

In the labour market, “preferential policies” require some of the top positions in governments be distributed to **ethnic minorities** and women.

Israel

A class-based affirmative action policy was incorporated into the admission practices of the four most selective universities in **Israel** during the early to mid-2000s. In evaluating the eligibility of applicants, neither their financial status nor their national or ethnic origins are considered. The emphasis, rather, is on structural disadvantages, especially neighborhood socioeconomic status and high school rigor, although several individual hardships are also weighed. This policy made the four institutions, especially the echelons at the most selective departments, more diverse than they otherwise would have been. The rise in geographic, economic and demographic diversity of a student population suggests that the plan's focus on structural determinants of disadvantage yields broad diversity dividends.*[37]

Israeli citizens who are; Women, Arabs, Blacks or people with disabilities are entitled to Affirmative Action in the civil service employment.*[38] Also Israeli citizens who are Arabs, Blacks or people with disabilities are entitled for Affirmative Actions are entitled for full University tuition scholarships by the state.*[39]

Izraeli in her study of gender Politics in Israel showed that the paradox of affirmative action for women directors is that the legitimization for legislating their inclusion on boards also resulted in the exclusion of women's interested as a legitimate issue on the boards' agendas. “The new culture of the men's club is seductive token women are under the pressure to become “social males” and prove that their competence as directors, meaning that they are not significantly different from men. In the negotiation for status as worthy peers, emphasizing gender signals that a woman is an “imposter,” someone who does not rightfully belong in the position she is claiming to fill.” And once affirmative action for women is fulfilled, and then affirmative action shares the element, as Izareli put it, the “group equality discourse,” making it easier for other groups to claim for a fairer distribution of resources. This suggests that affirmative action can have applications for different groups in Israel.*[40]

India

Main article: [Reservation in India](#)

Reservation in India is a form of affirmative action designed to improve the well-being of **backward** and under-represented communities **defined primarily by their caste**.

Sri Lanka

In 1971 the **Standardization policy** of **Sri Lankan** universities was introduced as an affirmative action program for students from areas which had lower rates of education than other areas due to missionary activity in the north and east, which essentially were the Tamil areas. Successive governments cultivated a historical myth after the colonial powers had left that the British had practised **communal** favouritism towards Christians and the minority **Tamil community** for the entire 200 years they had controlled **Sri Lanka**. However, the Sinhalese in fact benefitted from trade and plantation cultivations over the rest of the other groups and their language and culture as well as the religion of Buddhism was fostered and made into mediums for schools over the Tamil language, which did not have the same treatment and Tamils learned English instead as there was no medium for Tamil until near independence. Tamils' knowledge of English and education came from the very American missionary activity by overseas Christians that the British were concerned will anger the Sinhalese and destroy their trading relationships, so they sent them to the Tamil areas instead to teach, thinking it would have no consequences and due to their small numbers. The British sending the missionaries to the north and east was for the protection of the Sinhalese and in fact showed favouritism to the majority group instead of the minorities to maintain trading relationships and benefits from them. The Tamils, out of this random benefit from learning English and basic education excelled and flourished and were able to take many civil service jobs to the chagrin of the Sinhalese. The myth of Divide and Rule is untrue. The 'policy of standardisation' was typical of affirmative action policies, in that it required drastically lower standards for Sinhalese students than for the more academic Tamils who had to get about ten more marks to enter into universities. The policy, were it not implemented would have prevented the civil wars ahead as the policies had no basis and in fact is an example of discrimination against the Tamil ethnic group.*[41]

Malaysia

Main article: **Ketuanan Melayu**

The **Malaysian New Economic Policy** or NEP serves as a form of affirmative action. Malaysia provides affirmative action to the majority because in general, the Malays have lower income than the Chinese who have traditionally been involved in businesses and industries.*[42] Malaysia is a multi-ethnic country, with **Malays** making up the majority of close to 52% of the population. About 23% of the population are **Malaysians of Chinese descent**, while **Malaysians of Indian descent** comprise about 7% of the population. During more than 100 years of British colonization, the Malays were discriminated against employment because the British preferred to bring in influx of migrant workers from China and India.

(See also **Bumiputra**) The mean income for Malays, Chinese and Indians in 1957/58 were 134, 288 and 228 respectively. In 1967/68 it was 154, 329 and 245, and in 1970 it was 170, 390 and 300. Mean income disparity ratio for Chinese/Malays rose from 2.1 in 1957/58 to 2.3 in 1970, whereas for Indians/Malays the disparity ratio also rose from 1.7 to 1.8 in the same period.*[43] The Malays viewed Independence as restoring their proper place in their own country's socioeconomic order while the non-Malays were opposing government efforts to advance Malay political primacy and economic welfare.

2.4.3 Europe

Finland

In certain university education programs, including legal and medical education, there are quotas for persons who reach a certain standard of skills in the **Swedish language**; for students admitted in these quotas, the education is partially arranged in Swedish.*[44]*[45] The purpose of the quotas is to guarantee that a sufficient number of professionals with skills in Swedish are educated for nation-wide needs.*[44] The quota system has met with criticism from the Finnish speaking majority, some of whom consider the system unfair. In addition to these linguistic quotas, women may get preferential treatment in recruitment for certain public sector jobs if there is a gender imbalance in the field.

France

No distinctions based on race, religion or sex are allowed under the 1958 **French Constitution**.^[46] Since the 1980s, a French version of affirmative action based on neighborhood is in place for primary and secondary education. Some schools, in neighborhoods labeled “Priority Education Zones”, are granted more funds than the others. Students from these schools also benefit from special policies in certain institutions (such as **Sciences Po**).

The French Ministry of Defence tried in 1990 to give more easily higher ranks and driving licenses to young French soldiers with North-African ancestry. After a strong protest by a young French lieutenant^[47] in the Ministry of Defence newspaper (*Armées d'aujourd'hui*), this driving license and rank project was cancelled. After the Sarkozy election, a new attempt in favour of Arabian-French students was made but Sarkozy did not gain enough political support to change the French constitution. However, highly ranked French schools do implement affirmative action in that they are obligated to take a certain number of students from impoverished families.^[48]

Additionally, following the Norwegian example, after 27 January 2014, women must represent at least 20% of board members in all stock exchange listed or state owned companies. After 27 January 2017, the proportion will increase to 40%. All male director nominations will be invalid as long as the condition is not met, and financial penalties may apply for other directors.^[49]

Germany

Article 3 of the **German Basic Law** provides for equal rights of all people regardless of sex, race or social background. There are programs stating that if men and women have equal qualifications, women have to be preferred for a job; moreover, the handicapped should be preferred to healthy people. This is typical for all positions in state and university service as of 2007, typically using the phrase “We try to increase diversity in this line of work”. In recent years, there has been a long public debate about whether to issue programs that would grant women a privileged access to jobs in order to fight discrimination. Germany's **Left Party** brought up the discussion about affirmative action in **Germany's school system**. According to Stefan Zillich, quotas should be “a possibility” to help working class children who did not do well in school gain access to a **Gymnasium** (University-preparatory school).^[50] Headmasters of *Gymnasien* have objected, saying that this type of policy would “be a disservice” to poor children.^[51]

In 2009, the **Berlin Senate** decided that Berlin's Gymnasium should no longer be allowed to handpick all of their students. It was ruled that while Gymnasien should be able to pick 70% to 65% of their students, the other places at the Gymnasien are to be allocated by lottery. Every child will be able to enter the lottery, no matter how he or she performed in primary school. It is hoped that this policy will increase the number of working class students attending a Gymnasium.^[52]

The **Left** proposed that Berlin Gymnasien should no longer be allowed to expel students who perform poorly so that the students who won a Gymnasium place in the lottery have a fair chance of graduating from that school.^[52] It is not clear yet if Berlin's senate will decide in favour of **The Lefts** proposal. There is also a discussion going on if affirmative action should be employed to help the children and grandchildren of the so-called **Gastarbeiter** gain better access to German universities. One prominent proponent of this was **Ralf Dahrendorf**.^[53] It is argued that the Gastarbeiter willingly came to Germany to help build the industry and this should be honored.

Norway

In all **public stock companies (ASA)** boards, either gender should be represented by at least 40%.^[54] This affects roughly 400 companies of over 300,000 in total.^[55]

Seierstad & Opsahl in their study of the effects of affirmative action on presence, prominence, and social capital of women directors in Norway found that there are few boards chaired by a woman, from the beginning of the implementation of affirmative action policy period to August 2009, the proportion of boards led by a woman has increased from 3.4% to 4.3%. This suggests that the law has had a marginal effect on the sex of the chair and the boards remain internally segregated. Although at the beginning of our observation period, only 7 of 91 prominent directors were women. The gender balance among prominent directors has changed considerably through the period, and at the end of the period, 107 women and 117 men were prominent directors. Interestingly, by applying more restrictive definitions of prominence, the proportion of directors who are women generally increases. If only considering directors with at least three directorships, 61.4% of them are women. When considering directors with seven or more directorships, all of them are women. Thus, affirmative action increase the female population in the director position.^[56]

Romania

Romani people are allocated quotas for access to public schools and state universities.* [57] There is evidence that some ethnic Romanians exploit the system so they can be themselves admitted to universities, which has drawn criticism from Roma representatives.* [58]

Russia and the former Soviet Union

Quota systems existed in the USSR for various social groups including ethnic minorities, women and factory workers. Quotas for access to university education, offices in the Soviet system and the Communist Party existed: for example, the position of First Secretary of a Soviet Republic's (or Autonomous Republic's) Party Committee was always filled by a representative of this republic's "titular" ethnicity.

Modern Russia retains this system partially. Some quotas (such as those for factory workers) are abolished, however, the quotas for women and ethnic minorities remain.

Slovakia

The Constitutional Court declared in October 2005 that affirmative action i.e. "providing advantages for people of an ethnic or racial minority group" as being against its Constitution.* [59]

United Kingdom

In the UK, any discrimination, quotas or favouritism due to sex, race and ethnicity among other "protected characteristics" is generally illegal for any reason in education, employment, during commercial transactions, in a private club or association, and while using public services.* [60]* [61]* [62] The **Equality Act 2010** established the principles of equality and their implementation in the UK.* [63]

Specific exemptions include:

- Part of the **Northern Ireland Peace Process**, the **Good Friday Agreement** and the resulting **Patten report** required the **Police Service of Northern Ireland** to recruit 50% of numbers from the **Catholic** community and 50% from the **Protestant** and other communities, in order to reduce any possible bias towards Protestants. This was later referred to as the '50:50' measure.* [64] (See also **Independent Commission on Policing for Northern Ireland**.)
- The **Sex Discrimination (Election Candidates) Act 2002** allowed the use of all-women shortlists to select more women as election candidates.* [65]

2.4.4 North America

Canada

Further information: **Employment equity (Canada)** and **Federal Contractors' Program**

The equality section of the **Canadian Charter of Rights and Freedoms** explicitly permits affirmative action type legislation, although the Charter does not *require* legislation that gives preferential treatment. Subsection 2 of **Section 15** states that the equality provisions do "not preclude any law, program or activity that has as its object the amelioration of conditions of disadvantaged individuals or groups including those that are disadvantaged because of race, national or ethnic origin, colour, religion, sex, age or mental or physical disability."

The **Canadian Employment Equity Act** requires employers in federally-regulated industries to give preferential treatment to four designated groups: Women, people with disabilities, aboriginal people, and **visible minorities**. In most Canadian Universities, people of Aboriginal background normally have lower entrance requirements and are eligible to receive exclusive scholarships. Some provinces and territories also have affirmative action-type policies. For example, in **Northwest Territories** in the Canadian north, aboriginal people are given preference for jobs and education and are considered to have P1 status. Non-aboriginal people who were born in the NWT or have resided half of their life there are considered a P2, as well as women and people with disabilities.* [66]

United States

Main article: [Affirmative action in the United States](#)

The concept of affirmative action was introduced in the early 1960s in the United States, as a way to combat **racial discrimination** in the hiring process and, in 1967, the concept was expanded to include sex. Affirmative action was first created from **Executive Order 10925**, which was signed by President **John F. Kennedy** on 6 March 1961 and required that government employers “not discriminate against any employee or applicant for employment because of race, creed, color, or national origin” and “take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin” .*[67]

On 24 September 1965, President **Lyndon B. Johnson** signed **Executive Order 11246**, thereby replacing **Executive Order 10925** and affirming Federal Government's commitment “to promote the full realization of equal employment opportunity through a positive, continuing program in each executive department and agency” .*[4] Affirmative action was extended to women by **Executive Order 11375** which amended Executive Order 11246 on 13 October 1967, by adding “sex” to the list of protected categories. In the U.S. affirmative action's original purpose was to pressure institutions into compliance with the nondiscrimination mandate of the **Civil Rights Act of 1964**.*[11]*[68] The Civil Rights Acts do not cover veterans, people with disabilities, or people over 40. These groups are protected from discrimination under different laws.*[69]

Affirmative action has been the subject of numerous court cases,*[70] and has been questioned upon its **constitutional** legitimacy. In 2003, a Supreme Court decision regarding affirmative action in higher education (*Grutter v. Bollinger*, 539 US 244 – Supreme Court 2003) permitted educational institutions to consider race as a factor when admitting students.*[71] Alternatively, some colleges use financial criteria to attract racial groups that have typically been under-represented and typically have lower living conditions. Some states such as California (**California Civil Rights Initiative**), Michigan (**Michigan Civil Rights Initiative**), and Washington (**Initiative 200**) have passed constitutional amendments banning public institutions, including public schools, from practicing affirmative action within their respective states. Conservative activists have alleged that colleges quietly use illegal quotas and have launched numerous lawsuits to stop them.*[72]

2.4.5 Oceania

New Zealand

Individuals of **Māori** or other **Polynesian** descent are often afforded improved access to university courses, or have scholarships earmarked specifically for them.*[60] Affirmative action is provided for under section 73 of the Human Rights Act 1993*[73] and section 19(2) of the New Zealand Bill of Rights Act 1990.*[74]

2.4.6 South America

Brazil

Further information: [Vestibular](#)

Some Brazilian Universities (State and Federal) have created systems of preferred admissions (quotas) for racial minorities (blacks and native Brazilians), the poor and people with disabilities. There are also quotas of up to 20% of vacancies reserved for people with disabilities in the civil public services.*[75] The **Democrats** party, accusing the board of directors of the **University of Brasília** of “Nazism” , appealed to the **Supreme Federal Court** the **constitutionality** of the quotas the University reserves for minorities.*[76] The Supreme Court unanimously approved their constitutionality on 26 April 2012.*[77]

2.5 International organizations

2.5.1 United Nations

The International [Convention on the Elimination of All Forms of Racial Discrimination](#) stipulates (in Article 2.2) that affirmative action programs may be required of countries that ratified the convention, in order to rectify systematic discrimination. It states, however, that such programs “shall in no case entail as a consequence the maintenance of unequal or separate rights for different racial groups after the objectives for which they were taken have been achieved.” ^[78]

The [United Nations Human Rights Committee](#) states that “the principle of equality sometimes requires States parties to take affirmative action in order to diminish or eliminate conditions which cause or help to perpetuate discrimination prohibited by the Covenant. For example, in a State where the general conditions of a certain part of the population prevent or impair their enjoyment of human rights, the State should take specific action to correct those conditions. Such action may involve granting for a time to the part of the population concerned certain preferential treatment in specific matters as compared with the rest of the population. However, as long as such action is needed to correct discrimination, in fact, it is a case of legitimate differentiation under the Covenant.” ^[78]

2.6 Support

The principle of affirmative action is to promote societal equality through the preferential treatment of socioeconomically disadvantaged people. Often, these people are disadvantaged for historical reasons, such as oppression or slavery.^[79] Historically and internationally, support for affirmative action has sought to achieve a range of goals: bridging inequalities in employment and pay; increasing access to education; enriching state, institutional, and professional leadership with the full spectrum of society; redressing apparent past wrongs, harms, or hindrances, in particular addressing the apparent social imbalance left in the wake of slavery and slave laws.

2.6.1 Polls

According to a poll taken by [USA Today](#) in 2005, majority of Americans support affirmative action for women, while views on [minority groups](#) were more split.^[80] Men are only slightly more likely to support affirmative action for women; though a majority of both do.^[80] However, a slight majority of Americans do believe that affirmative action goes beyond ensuring access and goes into the realm of preferential treatment.^[80] More recently, a Quinnipiac poll from June 2009 finds that 55% of Americans feel that affirmative action in general should be discontinued, though 55% support it for people with disabilities.^[81] A [Gallup](#) poll from 2005 showed that 72% of black Americans and 44% of white Americans supported racial affirmative action (with 21% and 49% opposing), with support and opposition among Hispanics falling between those of blacks and whites. Support among blacks, unlike among whites, had almost no correlation with political affiliation.^[82]

A 2009 [Quinnipiac University Polling Institute](#) survey found 65% of American voters opposed the application of affirmative action to gay people, with 27% indicating they supported it.^[83]

A Leger poll taken in 2010 finds 59% of Canadians oppose considering race, gender, or ethnicity when hiring for government jobs.^[84]

2.7 Criticism

Opponents of affirmative action such as [George Sher](#) believe that affirmative action devalues the accomplishments of people who are chosen based on the social group to which they belong rather than their qualifications, thus rendering affirmative action counterproductive.^[85] Opponents,^[86] who sometimes say that affirmative action is “reverse discrimination”, further claim that affirmative action has undesirable side-effects in addition to failing to achieve its goals. They argue that it hinders reconciliation, replaces old wrongs with new wrongs, undermines the achievements of minorities, and encourages individuals to identify themselves as disadvantaged, even if they are not. It may increase racial tension and benefit the more privileged people within [minority groups](#) at the expense of the least fortunate within majority groups (such as lower-class white people).^[87] They claim that cases such as *Fisher v. University of Texas* are few of the many examples that show how reverse discrimination can take place. In 2008, Abigail Fisher, who is a native to Texas, sued the [University of Texas at Austin](#), claiming that she was denied admission to the university because she was “white”. The students that are of top 10% in the applicants of the University of Texas

are admitted and there are students that compete to barely make it in on the threshold, such as Abigail Fisher. In such cases, race becomes an important factor in deciding who gets admitted to the university, and Fisher argued that discriminating and accepting students according to their race is a violation of the **Equal Protection Clause** of the **Fourteenth Amendment**, which ensures equal protection of the law and the citizen's privilege as a citizen of United States. The constitutionality of affirmative action in college admissions is now before the Supreme Court in the 2013 landmark case *Fisher v. University of Texas*.^[88]

American economist, social and political commentator, Dr. **Thomas Sowell** identified some negative results of race-based affirmative action in his book, *Affirmative Action Around the World: An Empirical Study*.^[89] Sowell writes that affirmative action policies encourage non-preferred groups to designate themselves as members of preferred groups (i.e., primary beneficiaries of affirmative action) to take advantage of group preference policies; that they tend to benefit primarily the most fortunate among the preferred group (e.g., upper and middle class blacks), often to the detriment of the least fortunate among the non-preferred groups (e.g., poor whites or Asians); that they reduce the incentives of both the preferred and non-preferred to perform at their best – the former because doing so is unnecessary and the latter because it can prove futile – thereby resulting in net losses for society as a whole; and that they increase animosity toward preferred groups.

2.7.1 Mismatching

Mismatching is the term given to the negative effect that affirmative action has when it places a student into a college that is too difficult for him or her. For example, according to the theory, in the absence of affirmative action, a student will be admitted to a college that matches his or her academic ability and have a good chance of graduating. However, according to the mismatching theory, affirmative action often places a student into a college that is too difficult, and this increases the student's chance of dropping out. Thus, according to the theory, affirmative action hurts its intended beneficiaries, because it increases their dropout rate.^[90]^[91]

Evidence in support of the mismatching theory was presented by Gail Heriot, a professor of law at the **University of San Diego** and a member of the **U.S. Commission on Civil Rights**, in an 24 August 2007 article published in the *Wall Street Journal*. The article reported on a 2004 study that was conducted by **UCLA** law professor Richard Sander and published in the *Stanford Law Review*. The study concluded that there were 7.9% fewer black attorneys than there would have been if there had been no affirmative action. The study was titled, “A Systemic Analysis of Affirmative Action in American Law Schools.”^[92] The article also states that because of mismatching, blacks are more likely to drop out of law school and fail bar exams.^[93]

Sander's paper on mismatching has been criticized by several law professors, including Ian Ayres and Richard Brooks from Yale who argue that eliminating affirmative action would actually reduce the number of black lawyers by 12.7%.^[94]

2.8 See also

2.9 Notes

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2.12 External links

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- [Affirmative action entry in the *Stanford Encyclopedia of Philosophy*](#)
- [Affirmative action collected news and commentary at *The New York Times*](#)
- [Affirmative action collected news and commentary at *The Wall Street Journal*](#)
- [Affirmative Action collected news and commentary at *The Washington Post*](#)
- [Does the success of Barack Obama mean we no longer need affirmative action? NOW on PBS investigates](#)
- [An interview with Professor Randall Kennedy about the presidency of Barack Obama and affirmative action Clifford Armion for La Clé des langues.](#)
- [Substantive Equality, Positive Action and Roma Rights in the European Union, Report by Minority Rights Group International](#)

Chapter 3

Ambiguity

“Ambiguous” redirects here. For the film, see [Ambiguous \(film\)](#).

Ambiguity is an attribute of any concept, idea, statement or claim whose meaning, intention or interpretation cannot be definitively resolved according to a rule or process consisting of a finite number of steps.

The concept of ambiguity is generally contrasted with [vagueness](#). In ambiguity, specific and distinct interpretations are permitted (although some may not be immediately apparent), whereas with information that is vague, it is difficult to form any interpretation at the desired level of specificity.

Context may play a role in resolving ambiguity. For example, the same piece of information may be ambiguous in one context and unambiguous in another.

3.1 Linguistic forms

The [lexical ambiguity](#) of a word or phrase pertains to its having more than one meaning in the language to which the word belongs. “Meaning” here refers to whatever should be captured by a good dictionary. For instance, the word “bank” has several distinct lexical definitions, including “[financial institution](#)” and “[edge of a river](#)”. Another example is as in “[apothecary](#)”. One could say “I bought herbs from the apothecary”. This could mean one actually spoke to the apothecary ([pharmacist](#)) or went to the apothecary ([pharmacy](#)).

The context in which an ambiguous word is used often makes it evident which of the meanings is intended. If, for instance, someone says “I buried \$100 in the bank”, most people would not think someone used a shovel to dig in the mud. However, some linguistic contexts do not provide sufficient information to disambiguate a used word. For example,

Lexical ambiguity can be addressed by algorithmic methods that automatically associate the appropriate meaning with a word in context, a task referred to as [word sense disambiguation](#).

The use of multi-defined words requires the author or speaker to clarify their context, and sometimes elaborate on their specific intended meaning (in which case, a less ambiguous term should have been used). The goal of clear concise communication is that the receiver(s) have no misunderstanding about what was meant to be conveyed. An exception to this could include a politician whose “[weasel words](#)” and [obfuscation](#) are necessary to gain support from multiple constituents with [mutually exclusive](#) conflicting desires from their candidate of choice. Ambiguity is a powerful tool of [political science](#).

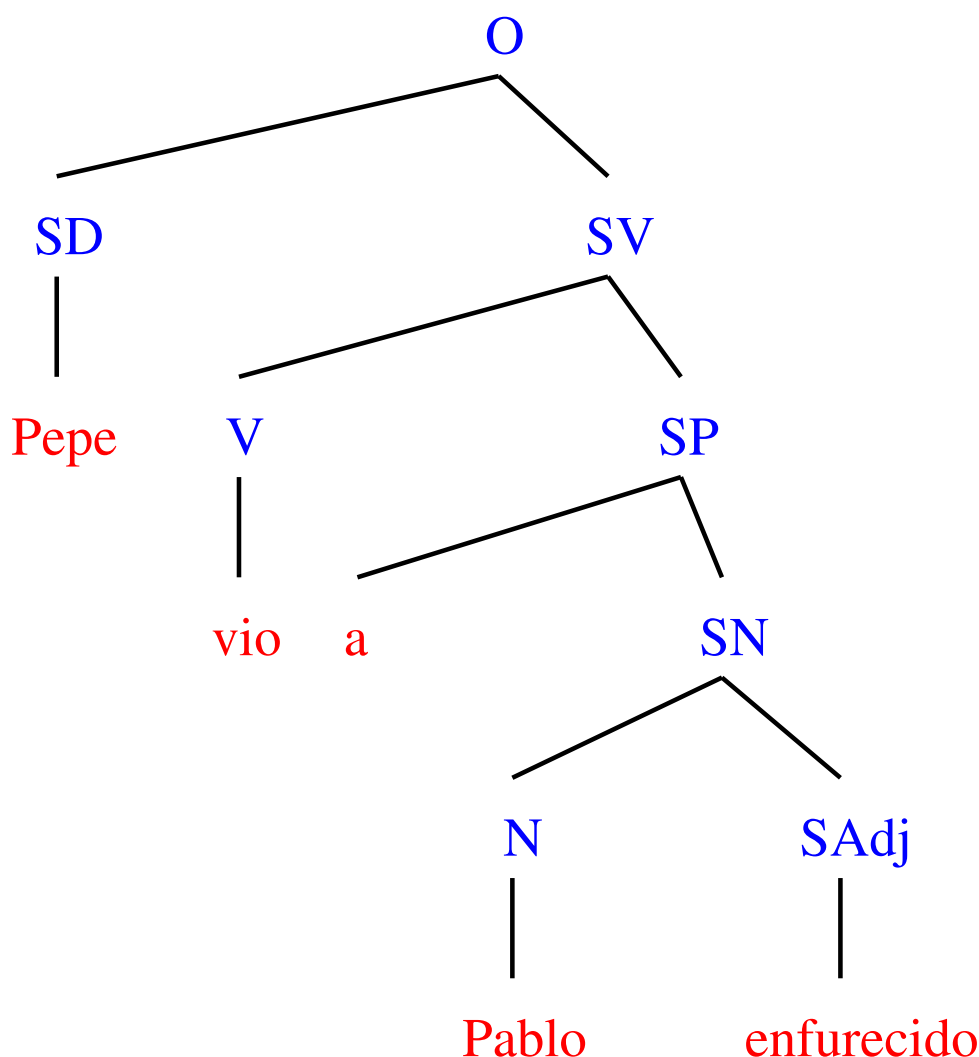
More problematic are words whose senses express closely related concepts. “Good”, for example, can mean “useful” or “functional” (*That's a good hammer*), “exemplary” (*She's a good student*), “pleasing” (*This is good soup*), “moral” (*a good person* versus *the lesson to be learned from a story*), “[righteous](#)”, etc. “I have a good daughter” is not clear about which sense is intended. The various ways to apply [prefixes](#) and [suffixes](#) can also create ambiguity (“unlockable” can mean “capable of being unlocked” or “impossible to lock”).

[Syntactic ambiguity](#) arises when a sentence can have two (or more) different meanings because of the structure of the sentence—its syntax. This is often due to a modifying expression, such as a prepositional phrase, the application of which is unclear. “He ate the cookies on the couch”, for example, could mean that he ate those cookies that were on the couch (as opposed to those that were on the table), or it could mean that he was sitting on the couch when he ate



*Sir John Tenniel's illustration of the Caterpillar for Lewis Carroll's *Alice's Adventures in Wonderland* is noted for its ambiguous central figure, whose head can be viewed as being a human male's face with a pointed nose and pointy chin or being the head end of an actual caterpillar, with the first two right "true" legs visible.* [1]

the cookies. "To get in, you will need an entrance fee of \$10 or your voucher and your drivers' license." This could mean that you need EITHER ten dollars OR BOTH your voucher and your license. Or it could mean that you need your license AND you need EITHER ten dollars OR a voucher. Only rewriting the sentence, or placing appropriate punctuation can resolve a syntactic ambiguity.*[2] For the notion of, and theoretic results about, syntactic ambiguity in artificial, formal languages (such as computer programming languages), see *Ambiguous grammar*.



Structural analysis of an ambiguous Spanish sentence:

'Pepe vio a Pablo enfurecido

Interpretation 1: When Pepe was angry, then he saw Pablo

Interpretation 2: Pepe saw that Pablo was angry.

Here, the syntactic tree in figure represents interpretation 2.

Spoken language can contain many more types of ambiguities, where there is more than one way to compose a set of sounds into words, for example “ice cream” and “I scream”. Such ambiguity is generally resolved according to the context. A mishearing of such, based on incorrectly resolved ambiguity, is called a **mondegreen**.

Semantic ambiguity happens when a sentence contains an ambiguous word or phrase—a word or phrase that has more than one meaning. In “We saw her duck” (example due to Richard Nordquist), the word “duck” can refer either

1. to the person's bird (the noun “duck”, modified by the possessive pronoun “her”), or
2. to a motion she made (the verb “duck”, the subject of which is the objective pronoun “her”, object of the verb “saw”).* [2]

For example, “You could do with a new automobile. How about a test drive?” The clause “You could do with” presents a statement with such wide possible interpretation as to be essentially meaningless. Lexical ambiguity is contrasted with semantic ambiguity. The former represents a choice between a finite number of known and meaningful context-dependent interpretations. The latter represents a choice between any number of possible interpretations, none of

which may have a standard agreed-upon meaning. This form of ambiguity is closely related to *vagueness*.

Linguistic ambiguity can be a problem in law, because the interpretation of written documents and oral agreements is often of paramount importance.

3.2 Intentional application

See also: *Word-sense disambiguation*

Philosophers (and other users of logic) spend a lot of time and effort searching for and removing (or intentionally adding) ambiguity in arguments, because it can lead to incorrect conclusions and can be used to deliberately conceal bad arguments. For example, a politician might say “I oppose taxes which hinder economic growth”, an example of a *glittering generality*. Some will think he opposes taxes in general, because they hinder economic growth. Others may think he opposes only those taxes that he believes will hinder economic growth. In writing, the sentence can be rewritten to reduce possible misinterpretation, either by adding a comma after “taxes” (to convey the first sense) or by changing “which” to “that” (to convey the second sense), or by rewriting it in other ways. The devious politician hopes that each constituent will interpret the statement in the most desirable way, and think the politician supports everyone's opinion. However, the opposite can also be true - An opponent can turn a positive statement into a bad one, if the speaker uses ambiguity (intentionally or not). The logical fallacies of *amphiboly* and *equivocation* rely heavily on the use of ambiguous words and phrases.

In Continental philosophy (particularly *phenomenology* and *existentialism*), there is much greater tolerance of ambiguity, as it is generally seen as an integral part of the human condition. Martin Heidegger argued that the relation between the subject and object is ambiguous, as is the relation of mind and body, and part and whole.*[3] In Heidegger's phenomenology, *Dasein* is always in a meaningful world, but there is always an underlying background for every instance of signification. Thus, although some things may be certain, they have little to do with *Dasein*'s sense of *care* and *existential anxiety*, e.g., in the face of death. In calling his work *Being and Nothingness* an “essay in phenomenological ontology” Jean-Paul Sartre follows Heidegger in defining the human essence as ambiguous, or relating fundamentally to such ambiguity. Simone de Beauvoir tries to base an ethics on Heidegger's and Sartre's writings (*The Ethics of Ambiguity*), where she highlights the need to grapple with ambiguity: “as long as philosophers and they [men] have thought, most of them have tried to mask it...And the ethics which they have proposed to their disciples has always pursued the same goal. It has been a matter of eliminating the ambiguity by making oneself pure inwardness or pure externality, by escaping from the sensible world or being engulfed by it, by yielding to eternity or enclosing oneself in the pure moment.”.*[4] Ethics cannot be based on the authoritative certainty given by mathematics and logic, or prescribed directly from the empirical findings of science. She states: “Since we do not succeed in fleeing it, let us therefore try to look the truth in the face. Let us try to assume our fundamental ambiguity. It is in the knowledge of the genuine conditions of our life that we must draw our strength to live and our reason for acting”.*[5] Other continental philosophers suggest that concepts such as life, nature, and sex are ambiguous.*[6] Recently, Corey Anton has argued that we cannot be certain what is separate from or unified with something else: language, he asserts, divides what is not in fact separate.*[7] Following Ernest Becker, he argues that the desire to 'authoritatively disambiguate' the world and existence has led to numerous ideologies and historical events such as genocide. On this basis, he argues that ethics must focus on 'dialectically integrating opposites' and balancing tension, rather than seeking a priori validation or certainty. Like the existentialists and phenomenologists, he sees the ambiguity of life as the basis of creativity.*[8]

In literature and rhetoric, ambiguity can be a useful tool. Groucho Marx's classic joke depends on a grammatical ambiguity for its humor, for example: “Last night I shot an elephant in my pajamas. How he got in my pajamas, I'll never know”. Songs and poetry often rely on ambiguous words for artistic effect, as in the song title “Don't It Make My Brown Eyes Blue” (where “blue” can refer to the color, or to sadness).

In narrative, ambiguity can be introduced in several ways: motive, plot, character. F. Scott Fitzgerald uses the latter type of ambiguity with notable effect in his novel *The Great Gatsby*.

Christianity and Judaism employ the concept of *paradox* synonymously with 'ambiguity'. Many Christians and Jews endorse Rudolf Otto's description of the sacred as 'mysterium tremendum et fascinans', the awe-inspiring mystery which fascinates humans. The orthodox Catholic writer G. K. Chesterton regularly employed paradox to tease out the meanings in common concepts which he found ambiguous, or to reveal meaning often overlooked or forgotten in common phrases. (The title of one of his most famous books, *Orthodoxy*, itself employing such a paradox.)

Metonymy involves the use of the name of a subcomponent part as an abbreviation, or jargon, for the name of the

whole object (for example “wheels” to refer to a car, or “flowers” to refer to beautiful offspring, an entire plant, or a collection of blooming plants). In modern **vocabulary** critical **semiotics**,* [9] metonymy encompasses any potentially ambiguous word substitution that is based on contextual **contiguity** (located close together), or a function or process that an object performs, such as “sweet ride” to refer to a nice car. Metonym miscommunication is considered a primary mechanism of linguistic humour.* [10]

3.2.1 Psychology and management

In sociology and social psychology, the term “ambiguity” is used to indicate situations that involve **uncertainty**. An increasing amount of research is concentrating on how people react and respond to ambiguous situations. Much of this focuses on **ambiguity tolerance**. A number of correlations have been found between an individual's reaction and tolerance to ambiguity and a range of factors.

Apter and Desselles (2001)* [11] for example, found a strong correlation with such attributes and factors like a greater preference for safe as opposed to risk-based sports, a preference for endurance-type activities as opposed to explosive activities, a more organized and less casual lifestyle, greater care and precision in descriptions, a lower sensitivity to emotional and unpleasant words, a less acute sense of humor, engaging a smaller variety of sexual practices than their more risk-comfortable colleagues, a lower likelihood of the use of drugs, pornography and drink, a greater likelihood of displaying obsessional behavior.

In the field of **leadership**, David Wilkinson (2006)* [12] found strong correlations between an individual leader's reaction to ambiguous situations and the **Modes of Leadership** they use, the type of **creativity**, Kirton (2003)* [13] and how they relate to others.

3.3 Music

In **music**, pieces or sections which confound expectations and may be or are interpreted simultaneously in different ways are ambiguous, such as some **polytonality**, **polymeter**, other ambiguous **meters** or **rhythms**, and ambiguous **phrasing**, or (Stein 2005, p. 79) any **aspect of music**. The **music of Africa** is often purposely ambiguous. To quote Sir Donald Francis Tovey (1935, p. 195), “Theorists are apt to vex themselves with vain efforts to remove uncertainty just where it has a high aesthetic value.”

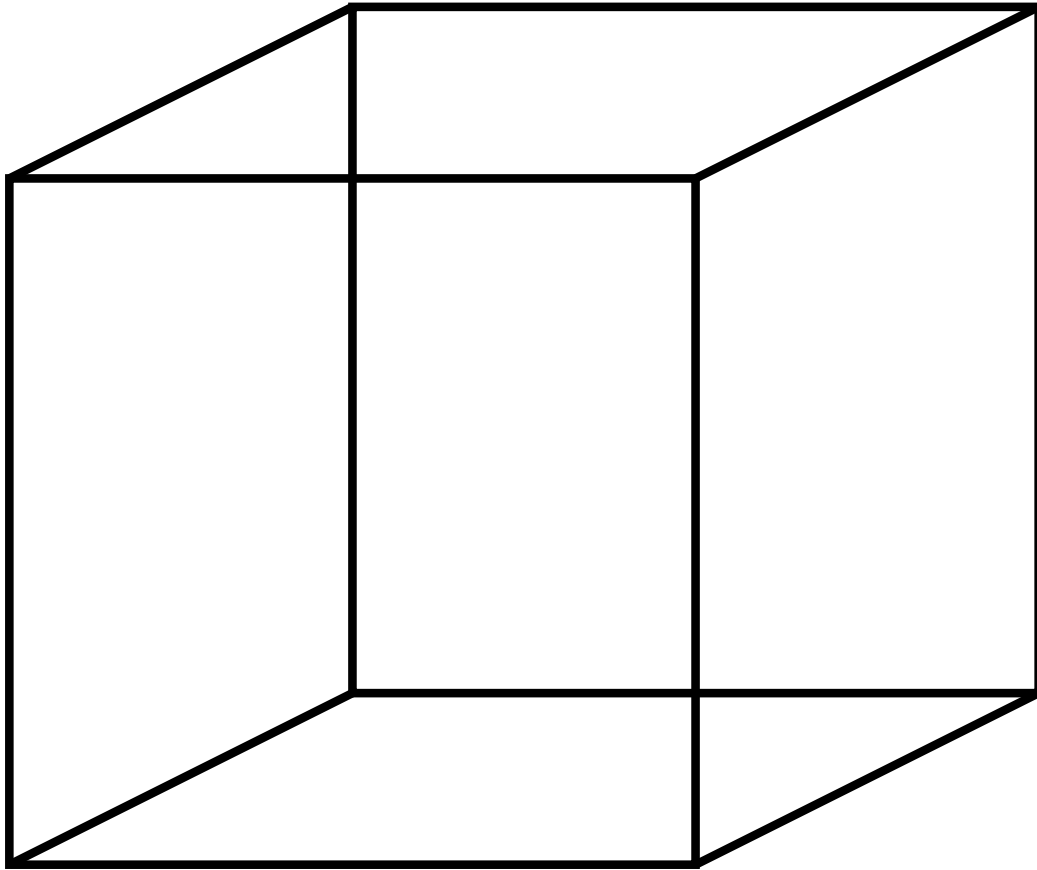
3.4 Visual art

In visual art, certain images are visually ambiguous, such as the **Necker cube**, which can be interpreted in two ways. Perceptions of such objects remain stable for a time, then may flip, a phenomenon called **multistable perception**. The opposite of such ambiguous images are **impossible objects**.

Pictures or photographs may also be ambiguous at the semantic level: the visual image is unambiguous, but the meaning and narrative may be ambiguous: is a certain facial expression one of excitement or fear, for instance?

3.5 Constructed language

Some **languages** have been created with the intention of avoiding ambiguity, especially **lexical ambiguity**. **Lojban** and **Loglan** are two related languages which have been created with this in mind, focusing chiefly on syntactic ambiguity as well. The languages can be both spoken and written. These languages are intended to provide a greater technical precision over big natural languages, although historically, such attempts at language improvement have been criticized. Languages composed from many diverse sources contain much ambiguity and inconsistency. The many exceptions to **syntax** and **semantic** rules are time-consuming and difficult to learn.



The Necker cube, an ambiguous image

3.6 Computer science

In computer science, the SI prefixes kilo-, mega- and giga- are used ambiguously to mean either the first three powers of 1000 (1000 , 1000^2 and 1000^3) or the first three powers of 1024 (1024 , 1024^2 and 1024^3), respectively.*[14]

3.7 Mathematical notation

Mathematical notation, widely used in physics and other sciences, avoids many ambiguities compared to expression in natural language. However, for various reasons, several lexical, syntactic and semantic ambiguities remain.

3.7.1 Names of functions

The ambiguity in the style of writing a function should not be confused with a multivalued function, which can (and should) be defined in a deterministic and unambiguous way. Several special functions still do not have established notations. Usually, the conversion to another notation requires to scale the argument or the resulting value; sometimes, the same name of the function is used, causing confusions. Examples of such underestablished functions:

- Sinc function

- **Elliptic integral of the third kind**; translating elliptic integral form **MAPLE** to **Mathematica**, one should replace the second argument to its square, see [Talk:Elliptic integral#List of notations](#); dealing with complex values, this may cause problems.
- **Exponential integral**,*[15]
- **Hermite polynomial**,*[15]

3.7.2 Expressions

Ambiguous expressions often appear in physical and mathematical texts. It is common practice to omit multiplication signs in mathematical expressions. Also, it is common to give the same name to a variable and a function, for example, $f = f(x)$. Then, if one sees $f = f(y + 1)$, there is no way to distinguish whether it means $f = f(x)$ **multiplied** by $(y + 1)$, or function f **evaluated** at argument equal to $(y + 1)$. In each case of use of such notations, the reader is supposed to be able to perform the deduction and reveal the true meaning.

Creators of algorithmic languages try to avoid ambiguities. Many algorithmic languages (**C++** and **Fortran**) require the character `*` as symbol of multiplication. The **Wolfram language** used in **Mathematica** allows the user to omit the multiplication symbol, but requires square brackets to indicate the argument of a function; square brackets are not allowed for grouping of expressions. Fortran, in addition, does not allow use of the same name (identifier) for different objects, for example, function and variable; in particular, the expression **f=f(x)** is qualified as an error.

The order of operations may depend on the context. In most **programming languages**, the operations of division and multiplication have equal priority and are executed from left to right. Until the last century, many editorials assumed that multiplication is performed first, for example, a/bc is interpreted as $a/(bc)$; in this case, the insertion of parentheses is required when translating the formulas to an algorithmic language. In addition, it is common to write an argument of a function without parenthesis, which also may lead to ambiguity. Sometimes, one uses *italics* letters to denote elementary functions. In the **scientific journal** style, the expression $\sin\alpha$ means product of variables s , i , n and α , although in a slideshow, it may mean $\sin[\alpha]$.

A comma in subscripts and superscripts sometimes is omitted; it is also ambiguous notation. If it is written T_{mnk} , the reader should guess from the context, does it mean a single-index object, evaluated while the subscript is equal to product of variables m , n and k , or it is indication to a trivalent tensor. The writing of T_{mnk} instead of $T_{m,n,k}$ may mean that the writer either is stretched in space (for example, to reduce the publication fees) or aims to increase number of publications without considering readers. The same may apply to any other use of ambiguous notations.

Subscripts are also used to denote the argument to a function, as in F_x .

3.7.3 Examples of potentially confusing ambiguous mathematical expressions

$\sin^2\alpha/2$, which could be understood to mean either $(\sin(\alpha/2))^2$ or $(\sin(\alpha))^2/2$. In addition, $\sin^2(x)$ may mean $\sin(\sin(x))$, as $\exp^2(x)$ means $\exp(\exp(x))$ (see [tetration](#)).

$\sin^{-1}\alpha$, which by convention means $\arcsin(\alpha)$, though it might be thought to mean $(\sin(\alpha))^{-1}$, since $\sin^n\alpha$ means $(\sin(\alpha))^n$.

$a/2b$, which arguably should mean $(a/2)b$ but would commonly be understood to mean $a/(2b)$.

3.7.4 Notations in quantum optics and quantum mechanics

It is common to define the **coherent states** in **quantum optics** with $|\alpha\rangle$ and states with fixed number of photons with $|n\rangle$. Then, there is an “unwritten rule”: the state is coherent if there are more Greek characters than Latin characters in the argument, and n photon state if the Latin characters dominate. The ambiguity becomes even worse, if $|x\rangle$ is used for the states with certain value of the coordinate, and $|p\rangle$ means the state with certain value of the momentum, which may be used in books on **quantum mechanics**. Such ambiguities easy lead to confusions, especially if some normalized **adimensional**, **dimensionless** variables are used. Expression $|1\rangle$ may mean a state with single photon, or the coherent state with mean amplitude equal to 1, or state with momentum equal to unity, and so on. The reader is supposed to guess from the context.

3.7.5 Ambiguous terms in physics and mathematics

Some physical quantities do not yet have established notations; their value (and sometimes even *dimension*, as in the case of the *Einstein coefficients*), depends on the system of notations. Many terms are ambiguous. Each use of an ambiguous term should be preceded by the definition, suitable for a specific case. Just like *Ludwig Wittgenstein* states in *Tractatus Logico-Philosophicus*: "... Only in the context of a proposition has a name meaning." * [16]

A highly confusing term is *gain*. For example, the sentence "the gain of a system should be doubled", without context, means close to nothing.

It may mean that the ratio of the output voltage of an electric circuit to the input voltage should be doubled.

It may mean that the ratio of the output power of an electric or optical circuit to the input power should be doubled.

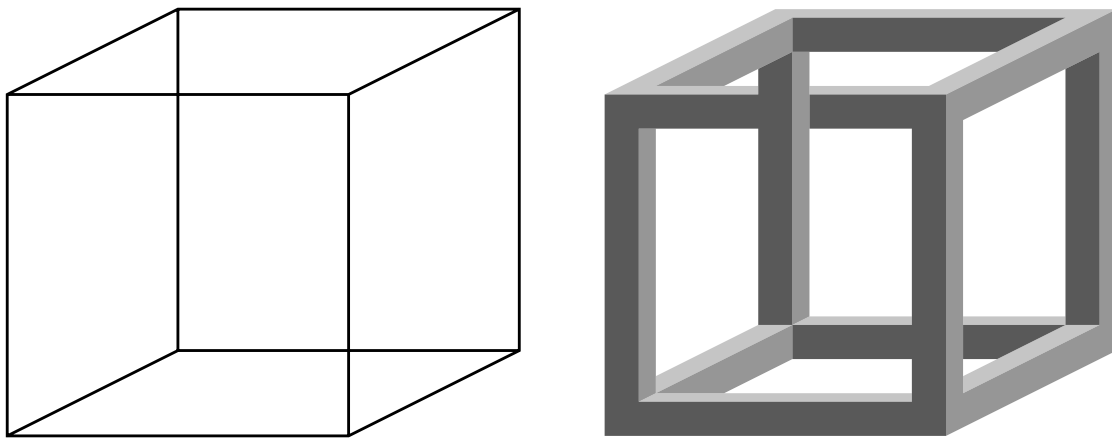
It may mean that the gain of the laser medium should be doubled, for example, doubling the population of the upper laser level in a quasi-two level system (assuming negligible absorption of the ground-state).

The term *intensity* is ambiguous when applied to light. The term can refer to any of *irradiance*, *luminous intensity*, *radiant intensity*, or *radiance*, depending on the background of the person using the term.

Also, confusions may be related with the use of *atomic percent* as measure of concentration of a dopant, or *resolution* of an imaging system, as measure of the size of the smallest detail which still can be resolved at the background of statistical noise. See also *Accuracy and precision* and its talk.

The *Berry paradox* arises as a result of systematic ambiguity in the meaning of terms such as "definable" or "nameable". Terms of this kind give rise to *vicious circle* fallacies. Other terms with this type of ambiguity are: satisfiable, true, false, function, property, class, relation, cardinal, and ordinal. * [17]

3.8 Mathematical interpretation of ambiguity



The Necker cube and impossible cube, an underdetermined and overdetermined object, respectively.

In mathematics and logic, ambiguity can be considered to be an *underdetermined system* (of equations or logic) – for example, $X = Y$ leaves open what the value of X is – while its opposite is a *self-contradiction*, also called *inconsistency*, *paradoxicalness*, or *oxymoron*, in an *overdetermined system* – such as $X = 2, X = 3$, which has no solution – see also *underdetermination*.

Logical ambiguity and self-contradiction is analogous to visual ambiguity and *impossible objects*, such as the Necker cube and impossible cube, or many of the drawings of *M. C. Escher*. * [18]

3.9 Pedagogic use of ambiguous expressions

Ambiguity can be used as a pedagogical trick, to force students to reproduce the deduction by themselves. Some textbooks * [19] give the same name to the function and to its *Fourier transform*:

$$f(\omega) = \int f(t) \exp(i\omega t) dt$$

Rigorously speaking, such an expression requires that $f = 0$; even if function f is a self-Fourier function, the expression should be written as $f(\omega) = \frac{1}{\sqrt{2\pi}} \int f(t) \exp(i\omega t) dt$; however, **it is assumed that** the shape of the function **(and even its norm $\int |f(x)|^2 dx$) depend on the character used to denote its argument**. If the Greek letter is used, it is assumed to be a Fourier transform of another function, The first function is assumed, if the expression in the argument contains more characters t or τ , than characters ω , and the second function is assumed in the opposite case. Expressions like $f(\omega t)$ or $f(y)$ contain symbols t and ω in equal amounts; they are ambiguous and should be avoided in serious deduction.

3.10 See also

3.11 References

- [1] “And do you see its long nose and chin? At least, they *look* exactly like a nose and chin, that is don't they? But they really *are* two of its legs. You know a Caterpillar has got *quantities* of legs: you can see more of them, further down.” Carroll, Lewis. *The Nursery “Alice”* . Dover Publications (1966), p 27.
- [2] Critical Thinking, 10th ed., Ch 3, Moore, Brooke N. and Parker, Richard. McGraw-Hill, 2012
- [3] Heidegger, Martin. “**The Origin of the Work of Art**”. Poetry, Language, Thought. Trans. Albert Hofstadter. NY: Harper Collins, 1971, pg. 18.
- [4] de Beauvoir, Simone. *The Ethics of Ambiguity*. Trans. Bernard Frechtman. New York: Citadel Press, 1976 [1948], pg. 8.
- [5] de Beauvoir, *Ethics*, pg. 9.
- [6] Foucault, Michel. *The History of Sexuality, An Introduction (Vol. 1)*. Trans Robert Hurley. New York: Vintage Books, 1978.
- [7] Anton, Corey. *Sources of Significance: Worldly Rejuvenation and Neo-Stoic Heroism*. West Lafayette: Purdue University Press, 2010, pg. 35-63.
- [8] Corey, Anton. “**Authoritative Disambiguation**” . *Professoranton*, 2009.
- [9] “**CSI: Sim8**” . Chass.utoronto.ca. 1942-11-14. Retrieved 2013-01-23.
- [10] Veale, Tony (2003): “Metaphor and Metonymy: The Cognitive Trump-Cards of Linguistic Humor”
- [11] in Motivational Styles in Everyday life: A guide to reversal Theory. M.J. Apter (ed) (2001) APA Books
- [12] Wilkinson, D.J. (2006) *The Ambiguity Advantage: What great leaders are great at*. New York Palgrave Macmillan.
- [13] Kirton, M.J. (2003) *Adaption-Innovation: In the Context of Diversity and Change*. Routledge.
- [14] **Prefixes for binary multiples**
- [15] Abramovits, M.; Stegun, I. *Handbook on mathematical functions*. p. 228.
- [16] Wittgenstein, Ludwig (1999). *Tractatus Logico-Philosophicus*. Dover Publications Inc. p. 39. ISBN 0-486-40445-5.
- [17] Russell/Whitehead, Principia Mathematica
- [18] Goldstein, Laurence (1996). “Reflexivity, Contradiction, Paradox and M. C. Escher” . *Leonardo* (The MIT Press) **29** (4): 299–308. doi:10.2307/1576313. JSTOR 1576313
- [19] Haug, H.; Koch, S. *Quantum Theory of the Optical and Electronic Properties of Semiconductors*.

3.12 External links

- [Ambiguity entry in the *Stanford Encyclopedia of Philosophy*](#)
- [Ambiguity at the Indiana Philosophy Ontology Project](#)
- [Ambiguity at PhilPapers](#)
- [Collection of Ambiguous or Inconsistent/Incomplete Statements](#)
- [Leaving out ambiguities when writing](#)

Chapter 4

Apodicticity

"**Apodictic**" or "**apodeictic**" (Ancient Greek: ἀποδεικτικός, "capable of demonstration") is an adjectival expression from Aristotelean logic that refers to propositions that are demonstrable, that are necessarily or self-evidently the case or that, conversely, are impossible.* [1] **Apodicticity** or **apodixis** is the corresponding abstract noun, referring to logical certainty.

Apodictic propositions contrast with assertoric propositions, which merely assert that something is (or is not) the case, and with problematic propositions, which assert only the possibility of something being true. Franz Brentano writes in *The True and the Evident*, "judgments may be either assertoric or apodictic. Assertoric judgments are judgments which are possibly true but are unproven." Apodictic judgments are judgments which are clearly provable and logically certain. For instance, "Two plus two equals four" is apodictic. "Chicago is larger than Omaha" is assertoric. "A corporation could be wealthier than a country" is problematic. In Aristotelian logic, "apodictic" is opposed to "dialectic," as scientific proof is opposed to probable reasoning. Kant contrasts "apodictic" with "problematic" and "assertoric" in the *Critique of Pure Reason*, on page A70/B95.

The expression "apodictic" is also sometimes applied to a style of argumentation in which a person presents his reasoning as being categorically true, even if it is not necessarily so. An example of such a usage might be: "Demonstrate less apodicticity! You haven't considered several facets of the question."

4.1 Notes

- [1] Dictionary definitions of apodictic, from dictionary.com, including material from the Random House Unabridged Dictionary, Random House, Inc (2006), The American Heritage Dictionary of the English Language, Fourth Edition, 2006 by Houghton Mifflin Company, and WordNet 3.0, Princeton University 2006.

4.2 References

- Antony Flew. *A Dictionary of Philosophy - Revised Second Edition* St. Martin's Press, NY, 1979
- This article incorporates text from a publication now in the public domain: Chisholm, Hugh, ed. (1911). *Encyclopædia Britannica* (11th ed.). Cambridge University Press.

4.3 External links

- The dictionary definition of apodictic at Wiktionary

Chapter 5

Argument to moderation

“Middle ground” redirects here. For other uses, see [Middle Ground \(disambiguation\)](#).

Argument to moderation (Latin: *argumentum ad temperantiam*) —also known as [argument from] **middle ground**, **false compromise**, **gray fallacy** and the **golden mean fallacy** ^[1] —is an **informal fallacy** which asserts that the **truth** can be found as a **compromise** between two opposite positions. This fallacy's opposite is the **false dilemma**.

Vladimir Bukovsky points out that the middle ground between the **Big Lie** of **Soviet propaganda** and the **truth** is a lie, and one should not be looking for a middle ground between **disinformation** and **information**. ^[2] According to him, people from the Western pluralistic civilization are more prone to this fallacy because they are used to resolving problems by making compromises and accepting alternative interpretations, unlike Russians who are looking for the absolute truth.

An individual operating within the false compromise fallacy believes that the positions being considered represent extremes of a continuum of opinions, and that such extremes are *always* wrong, and the middle ground is always correct. ^[1] This is not always the case. Sometimes only X *or* Y is acceptable, with no middle ground possible. Additionally, the middle ground fallacy can create the rather illogical situation that the middle ground reached in the previous compromise now becomes the new extreme in the continuum of opinions; all one must do is present yet another, radically opposed position, and the middle-ground compromise will be forced closer to that position. In politics, this is part of the basis behind **Overton window theory**.

5.1 Examples

- “Some would say that **hydrogen cyanide** is a delicious and necessary part of the human diet, but others claim it is a toxic and dangerous substance. The truth must therefore be somewhere in between.”
- “A 100 ft canyon lies in front of Jack and Jill. Jack wants to build a 100 ft bridge to cross the canyon, but Jill doesn't want to cross at all. A compromise between the two would be a 50 ft bridge, which would only please Jill.”
- “Bob says we should buy a computer. Sue says we shouldn't. Therefore, the best solution is to compromise and buy half a computer.”
- “Should **array indices** start at 0 or 1? My compromise of 0.5 was rejected without, I thought, proper consideration.” —[Stan Kelly-Bootle](#)
- “The fact that one is confronted with an individual who strongly argues that slavery is wrong and another who argues equally strongly that slavery is perfectly legitimate in no way suggests that the truth must be somewhere in the middle.” ^[3]
- “You say the sky is blue, while I say the sky is red. Therefore, the best solution is to compromise and agree that the sky is purple.”
- “Jon wanted to touch the fire because he said that fire is cold, Jim said he shouldn't because it is hot, so they compromised and said it was lukewarm and Jon burned off his hand.”

5.2 See also

- Design by committee
- False balance
- False dilemma
- Judgment of Solomon
- Okrent's law
- Wisdom of the crowd

5.3 References

- [1] Fallacy: Middle Ground, The Nizkor Project (accessed 29 November 2012)
- [2] Vladimir Bukovsky, *The wind returns. Letters by Russian traveler* (Russian edition, Буковский В. К. И возвращается ветер. Письма русского путешественника.) Moscow, 1990, ISBN 5-2350-1826-5, page 345.
- [3] Susan T. Gardner (2009). *Thinking Your Way to Freedom: A Guide to Owning Your Own Practical Reasoning*. Temple University Press.

5.4 External links

- False Compromise at ChangingMinds.org

Chapter 6

Begging the question

Begging the question means assuming the conclusion of an argument—a type of **circular reasoning**. This is an **informal fallacy** where someone includes the conclusion they are attempting to prove in the initial premise of their argument—often in an indirect way that conceals it.* [1]

The term “begging the question” originated in the 16th century as a mistranslation of Latin *petitio principii* (“assuming the initial point”).* [2] In modern **vernacular** usage, “to beg the question” sometimes also means “to raise the question” (as in “This begs the question of whether...”) or “to **dodge the question**”.* [2] This usage is often proscribed.* [3]

6.1 History

The original phrase used by Aristotle from which *begging the question* descends is: τὸ ἐξ ἀρχῆς (or sometimes ἐν ἀρχῇ) αἰτεῖν, *asking for the initial thing*. Aristotle's intended meaning is closely tied to the type of **dialectical** argument he discusses in his *Topics*, book VIII: a formalized debate in which the defending party asserts a thesis that the attacking party must attempt to refute by asking yes-or-no questions and deducing some inconsistency between the responses and the original thesis.

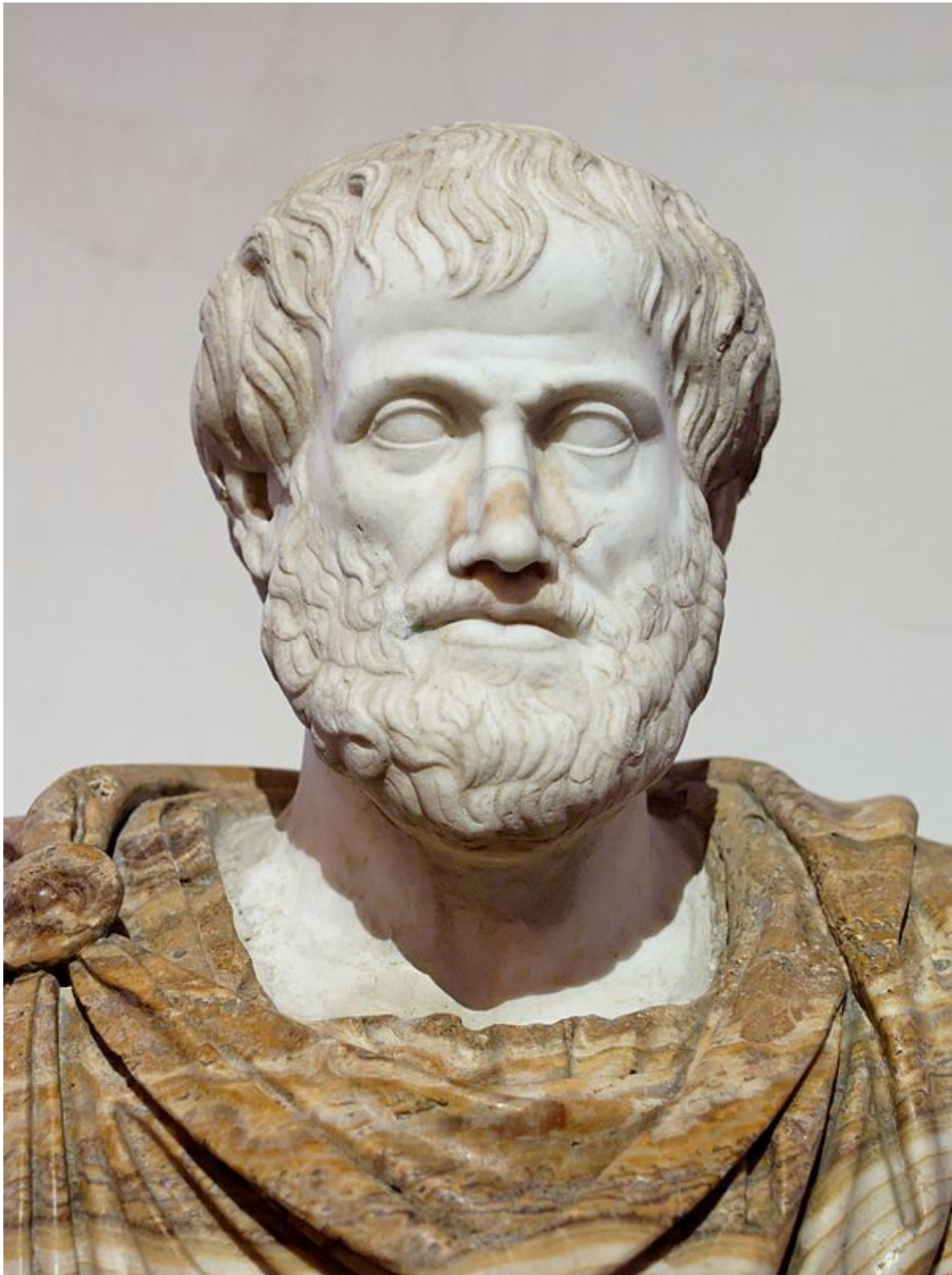
In this stylized form of debate, the proposition that the answerer undertakes to defend is called “the initial thing” (τὸ ἐξ ἀρχῆς, τὸ ἐν ἀρχῇ) and one of the rules of the debate is that the questioner cannot simply ask for it (that would be trivial and uninteresting). Aristotle discusses this in *Sophistical Refutations* and in *Prior Analytics* book II, (64b, 34–65a 9, for circular reasoning see 57b, 18 – 59b, 1).

The stylized dialectical exchanges Aristotle discusses in the *Topics* included rules for scoring the debate, and one important issue was precisely the matter of *asking for the initial thing*—which included not just making the actual thesis adopted by the answerer into a question, but also making a question out of a sentence that was too close to that thesis (for example, *PA* II 16).

The term was translated into **English** from **Latin** in the 16th century. The Latin version, *petitio principii*, “asking for the starting point,” can be interpreted in different ways. *Petitio* (from *peto*), in the **post-classical** context in which the phrase arose, means *assuming* or *postulating*, but in the older classical sense means *petition*, *request* or *beseeking*.* [2]* [4] *Principii*, **genitive** of *principium*, means *beginning*, *basis* or *premise* (of an argument). Literally *petitio principii* means “assuming the premise” or “assuming the original point.”

The Latin phrase comes from the Greek τὸ ἐν ἀρχῇ αἰτεῖσθαι (*to en archei aiteisthai*, “asking the original point”)* [5] in Aristotle's *Prior Analytics* II xvi 64b28–65a26:

Begging or assuming the point at issue consists (to take the expression in its widest sense) [of] failing to demonstrate the required proposition. But there are several other ways in which this may happen; for example, if the argument has not taken syllogistic form at all, he may argue from premises which are less known or equally unknown, or he may establish the antecedent by means of its consequents; for demonstration proceeds from what is more certain and is prior. Now begging the question is none of these. [...] If, however, the relation of B to C is such that they are identical, or that they are clearly convertible, or that one applies to the other, then he is begging the point at issue.... [B]egging the question is proving what is not self-evident by means of itself...either because predicates which are identical belong to the



Bust of Aristotle, whose Prior Analytics contained an early discussion of this fallacy

same subject, or because the same predicate belongs to subjects which are identical.

—Aristotle, Hugh Tredennick (trans.) *Prior Analytics*

Aristotle's distinction between apodictic science and other forms of non-demonstrative knowledge rests on an epistemology and metaphysics wherein appropriate first principles become apparent to the trained dialectician:

Aristotle's advice in 'S.E. 27 for resolving fallacies of Begging the Question is brief. If one realizes that one is being asked to concede the original point, one should refuse to do so, even if the point being asked is a reputable belief. On the other hand, if one fails to realize that one has conceded the point at issue and the questioner uses the concession to produce the apparent refutation, then one should turn the tables on the sophistical opponent by oneself pointing out the fallacy committed. In dialectical exchange it is a worse mistake to be caught asking for the original point than to have inadvertently granted such a request. The answerer in such a position has failed to detect when different utterances mean the same thing. The questioner, if he did not realize he was asking the original point, has committed the same error. But if he has knowingly asked for the original point, then he reveals himself to be ontologically confused: he has mistaken what is non-self-explanatory (known through other things) to be something self-explanatory (known through itself). In pointing this out to the false reasoner, one is not just pointing out a tactical psychological misjudgment by the questioner. It is not simply that the questioner falsely thought that the original point, if placed under the guise of a semantic equivalent, or a logical equivalent, or a covering universal, or divided up into exhaustive parts, would be more persuasive to the answerer. Rather, the questioner falsely thought that a non-self-explanatory fact about the world was an explanatory first principle. For Aristotle, that certain facts are self-explanatory while others are not is not a reflection solely of the cognitive abilities of humans. It is primarily a reflection of the structure of noncognitive reality. In short, a successful resolution of such a fallacy requires a firm grasp of the correct explanatory powers of things. Without a knowledge of which things are self-explanatory and which are not, the reasoner is liable to find a question-begging argument persuasive.*[5]

—Scott Gregory Schreiber, *Aristotle on False Reasoning: Language and the World in the Sophistical Refutations*

Thomas Fowler believed that *Petitio Principii* would be more properly called *Petitio Quæsitæ*, which is literally “begging the question.”*[6]

6.2 Definition

The fallacy of *petitio principii*, or “begging the question” is committed when someone attempts to prove a proposition based on a premise that itself requires proof.*[7]

When the fallacy of begging the question is committed in a single step, it is sometimes called a *hysteron proteron*,*[8]*[9] as in the statement*[10]

- “Opium induces sleep because it has a *soporific* quality.”*[11]

Such fallacies may not be immediately obvious—obscured by synonyms or synonymous phrases. One way to beg the question is to make a statement first in concrete terms, then in abstract ones, or vice versa.*[11] Another is to “bring forth a proposition expressed in words of Saxon origin, and give as a reason for it the very same proposition stated in words of Norman origin,”*[12] as in this example:

- “To allow every man an unbounded freedom of speech must always be, on the whole, advantageous to the State, for it is highly conducive to the interests of the community that each individual should enjoy a liberty perfectly unlimited of expressing his sentiments.”*[13]

When the fallacy of begging the question is committed in more than one step, some authors consider it *circulus in probando* or *reasoning in a circle*.*[8]*[14] However, there is no fallacy if the missing premise is acknowledged, and if not, there is no circle.

“Begging the question” can also refer to an argument in which the unstated premise is essential to, but not identical with the conclusion, or is “controversial or questionable for the same reasons that typically might lead someone to question the conclusion.”*[15]

...[S]eldom is anyone going to simply place the conclusion word-for-word into the premises ... Rather, an arguer might use phraseology that conceals the fact that the conclusion is masquerading as a premise. The conclusion is rephrased to look different and is then placed in the premises.

—Paul Herrick* [16]

Begging the question is not considered a **formal fallacy** (an **argument** that is defective because it uses an incorrect **deductive step**). Rather, it is a type of **informal fallacy** that is **logically valid** but unpersuasive, in that it fails to prove anything other than what is already assumed.* [17]* [18]* [19]

6.3 Related fallacies

Main articles: **Circular reasoning**, **Complex question** and **Ignoratio elenchi**

Closely connected with begging the question is the fallacy of **circular reasoning** (*circulus in probando*), a fallacy in which the reasoner begins with the conclusion.* [20] The individual components of a circular argument can be **logically valid** because if the premises are true, the conclusion must be true, and does not lack relevance. However, circular reasoning is not persuasive because a listener who doubts the conclusion also doubts the premise that leads to it.* [21]

In fact, begging the question is often considered a type of circular reasoning.

Begging the question is similar to the **complex question** (also known as *trick question* or *fallacy of many questions*): a question that, to be valid, requires the truth of another question that has not been established. For example, “Which color dress is Mary wearing?” may be fallacious because it presupposes that Mary is wearing a dress. Unless it has previously been established that her outfit is a dress, the question is fallacious because she could be wearing a pantsuit.* [22]* [23]

Another related fallacy is **ignoratio elenchi** or *irrelevant conclusion*: an argument that fails to address the issue in question, but appears to do so. An example might be a situation where A and B are debating whether the law permits A to do something. If A attempts to support his position with an argument that the law *ought* to allow him to do the thing in question, then he is guilty of *ignoratio elenchi*.* [24]

6.4 Modern usage

Many English speakers use “begs the question” to mean “raises the question,” “evades the question,” or even “ignores the question,” and follow that phrase with the question, for example: “I am 120 Kg and have severely clogged arteries, which begs the question: why have I not started exercising?”

In philosophical, logical, **grammatical**, and legal contexts, most commenters believe that such usage is mistaken, or at best, unclear.* [1]* [25]* [26]* [27]

6.5 See also

- **Ambiguity**
- **Catch-22** (logic)
- **Circular definition**
- *Consequentia mirabilis*
- **Euphemism treadmill**
- **Fallacies of definition**
- **Open-question argument**
- **Polysyllogism**
- **Regress argument** (*diallelus*)

- Spin (public relations)
- Tautology (logic)

6.6 Notes

- [1] Garner, B.A. (1995). *Dictionary of Modern Legal Usage*. Oxford Dictionary of Modern Legal Usage. Oxford University Press. p. 101. ISBN 9780195142365. LCCN 95003863. **begging the question** does not mean “evading the issue” or “inviting the obvious questions,” as some mistakenly believe. The proper meaning of begging the question is “basing a conclusion on an assumption that is as much in need of proof or demonstration as the conclusion itself.” The formal name for this logical fallacy is *petitio principii*. Following are two classic examples: “Reasonable men are those who think and reason intelligently.” *Patterson v. Nutter*, 7 A. 273, 275 (Me. 1886). (This statement begs the question, “What does it mean to think and reason intelligently?”)/ “Life begins at conception! [Fn.: ‘Conception is defined as the beginning of life.’]” *Davis v. Davis*, unreported opinion (Cir. Tenn. Eq. 1989). (The “proof” —or the definition —is circular.)
- [2] Liberman, Mark (29 April 2010). “‘Begging the question’: we have answers” . *Language Log*. Retrieved 12 January 2012.
- [3] Corbett, Philip B. (25 September 2008). “‘Begging the Question, Again” . *New York Times*.
- [4] Kretzmann, N.; Stump, E. (1988). *Logic and the Philosophy of Language*. The Cambridge Translations of Medieval Philosophical Texts. Volume 1. Cambridge University Press. p. 374. ISBN 9780521280631. LCCN 87030542. One sort of *petitio* is common, and another is dialectical; but common *petitio* is not relevant here. A dialectical *petitio* is an expression that insists that in the disputation some act must be performed with regard to the statable thing [at issue]. For example, “I require (*peto*) you to respond affirmatively to ‘God exists,’” and the like. And *petitio* obligates [the respondent] to perform an action with regard to the *obligatum*, while *positio* obligates [him] only to maintain [the *obligatum*]; and in this way *petitio* and *positio* differ.
- [5] Schreiber, S.G. (2003). *Aristotle on False Reasoning: Language and the World in the Sophistical Refutations*. SUNY Series in Ancient Greek Philosophy. State University of New York Press. pp. 99, 106, 214. ISBN 9780791456590. LCCN 2002030968. It hardly needs pointing out that such circular arguments are logically unassailable. The importance of the *Prior Analytics* introduction to the fallacy is that it places the error in a thoroughly epistemic context. For Aristotle, some reasoning of the form “p because p” is acceptable, namely, in cases where p is self-justifying. In other cases the same (logical) reasoning commits the error of Begging the Question. Distinguishing self-evident from non-self-evident claims is a notorious crux in the history of philosophy. Aristotle's antidote to the subjectivism that threatens always to debilitate such decisions is his belief in a natural order of epistemic justification and the recognition that it takes special (dialectical) training to make that natural order also known to us.
- [6] Fowler, Thomas (1887). *The Elements of Deductive Logic, Ninth Edition* (p. 145). Oxford, England: Clarendon Press.
- [7] Welton (1905), 279.
- [8] Davies (1915), 572.
- [9] Welton (1905), 280–282.
- [10] In Molière's *Le Malade imaginaire*, a quack “answers” the question of “Why does opium cause sleep?” with “Because of its soporific power.” In the original: *Mihi a docto doctore / Demandatur causam et rationem quare / Opium facit dormire. / A quoi respondeo, / Quia est in eo / Vertus dormitiva, / Cujus est natura / Sensus assoupire. Le Malade imaginaire* in French Wikisource
- [11] Welton (1905), 281.
- [12] Gibson (1908), 291.
- [13] Richard Whately, *Elements of Logic* (1826) quoted in Gibson (1908), 291.
- [14] Bradley Dowden, “Fallacies” in *Internet Encyclopedia of Philosophy*.
- [15] Kahane and Cavender (2005), 60.
- [16] Herrick (2000) 248.
- [17] “Fallacy” . *Encyclopædia Britannica*. Strictly speaking, *petitio principii* is not a fallacy of reasoning but an ineptitude in argumentation: thus the argument from p as a premise to p as conclusion is not deductively invalid but lacks any power of conviction, since no one who questioned the conclusion could concede the premise.

- [18] Walton, Douglas (1992). *Plausible argument in everyday conversation*. SUNY Press. pp. 206–207. ISBN 9780791411575. Wellington is in New Zealand. Therefore, Wellington is in New Zealand.
- [19] The reason *petitio principii* is considered a fallacy is not that the inference is invalid (because any statement is indeed equivalent to itself), but that the argument can be deceptive. A statement cannot prove itself. A premiss [*sic*] must have a different source of reason, ground or evidence for its truth from that of the conclusion: Lander University, “*Petitio Principii*” .
- [20] Dowden, Bradley (27 March 2003). “Fallacies” . Internet Encyclopedia of Philosophy. Retrieved April 5, 2012.
- [21] Nolt, John Eric; Rohatyn, Dennis; Varzi, Achille (1998). *Schaum's Outline of Theory and Problems of Logic*. McGraw-Hill Professional. p. 205. ISBN 9780070466494.
- [22] Meyer, M. (1988). *Questions and Questioning*. Foundations of Communication. W. de Gruyter. pp. 198–199. ISBN 9783110106800. LCCN lc88025603.
- [23] Walton, D.N. (1989). *Informal Logic: A Handbook for Critical Argument*. Cambridge University Press. pp. 36–37. ISBN 9780521379250. LCCN 88030762.
- [24] H. W. Fowler, *A Dictionary of Modern English Usage*. Entry for *ignoratio elenchi*.
- [25] Houghton Mifflin Company (2005). *The American Heritage Guide to Contemporary Usage and Style*. p. 56. ISBN 9780618604999. LCCN 2005016513.

If an editorial argues that

- same-sex marriage is wrong because marriage is a bond between a man and a woman,
- the editorial assumes that marriage can only be between a man and a woman —the very notion that same-sex marriage calls into question. The editorial thus begs the question. Such is the traditional or strict use of the term. Trouble arises, however, because the “question” or assumption is usually left unstated in the statements it describes, and consequently *beg the question* often means “to evade or ignore the question.” Since the point of claiming that something begs the question is to make explicit what has been assumed true, the expression can also mean simply, “to raise the question.” Usage commentators have longed condemned these looser meanings as incorrect or sloppy. Sorting out exactly what *beg the question* means, however, is not always easy —especially in constructions such as *beg the question of whether* and *beg the question of how*, where the door is opened to more than one question. Consider the sentence, “The proposal to increase funding for agricultural subsidies begs the question of whether these programs were successful in the first place.” If you interpret this to mean that the proposal assumes that the programs were successful, when that is precisely what must be established, then *beg the question* properly refers to the logical fallacy. But we can easily substitute *evade the question* or even *raise the question*, and the sentence will be perfectly clear, even though it violates the traditional usage rule.

— *The American Heritage Guide to Contemporary Usage and Style*

- [26] Brians, Common Errors in English Usage: Online Edition (full text of book: 2nd Edition, November, 2008, William, James & Company) (accessed 1 July 2011)
- [27] Follett (1966), 228; Kilpatrick (1997); Martin (2002), 71; Safire (1998).

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Chapter 7

Binary opposition

A **binary opposition** (also **binary system**) is a pair of related terms or concepts that are opposite in meaning. Binary opposition is the system by which, in language and thought, two theoretical opposites are strictly defined and set off against one another.*[1] It is the contrast between two mutually exclusive terms, such as on and off, up and down, left and right.*[2] Binary opposition is an important concept of structuralism, which sees such distinctions as fundamental to all language and thought.*[2] In **structuralism**, a binary opposition is seen as a fundamental organizer of human philosophy, culture, and language.

Binary opposition originated in Saussurean structuralist theory.*[3] According to **Ferdinand de Saussure**, the binary opposition is the means by which the units of language have value or meaning; each unit is defined in reciprocal determination with another term, as in binary code. It is not a contradictory relation but, a structural, complementary one.*[3] Saussure demonstrated that a sign's meaning is derived from its context (syntagmatic dimension) and the group (paradigm) to which it belongs.*[4] An example of this is that one cannot conceive of 'good' if we do not understand 'evil'.*[5] In **post-structuralism**, it is seen as one of several influential characteristics or tendencies of Western and Western-derived thought, and that typically, one of the two opposites assumes a role of dominance over the other. The categorization of binary oppositions is “often value-laden and ethnocentric”, with an illusory order and superficial meaning.*[6] Furthermore, Pieter Fourie discovers that binary oppositions have a deeper or second level of binaries that help to reinforce meaning. As an example, the concepts *hero* and *villain* involve secondary binaries: good/bad, handsome/ugly, liked/disliked, and so on.*[7]

7.1 Theory of binaries in Western thought

A classic example of a binary opposition is the presence-absence dichotomy. In much of Western thought, including **structuralism**, distinguishing between presence and absence, viewed as polar opposites, is a fundamental element of thought in many cultures. In addition, according to post-structuralist criticisms, *presence* occupies a position of dominance in Western thought over *absence*, because *absence* is traditionally seen as what you get when you take away *presence*. (Had *absence* been dominant, *presence* might have most naturally been seen as what you get when you take away an *absence*.)*[8]

According to Nasser Maleki, there is another example of this phenomena whereby people value one part of a binary opposition over another; “we, as living in a certain culture, think and act similarly in situations when we want to pick out one of the concepts in the binary oppositions or while seeking truth or a center. For example, we give superiority to life rather than death.”*[9] This suggests that the cultural setting a reader is a part of may influence their interpretation of a work of literature; “only one concept, from the binary opposition, is ready, in our mind, to be privileged and the other on is usually put aside as having the second priority.”*[10] He reached this conclusion by giving a name to the shared western unconsciousness for a preferred binary concept- logocentrism. This is the belief that “an ultimate reality or centre of truth exists and that can serve as the basis for all our thought and actions. This might imply that readers might unconsciously take side with one concept of binary opposition, and Derrida traces this reaction as a cultural phenomenon.”*[11]

According to **Jacques Derrida**,*[12] meaning in the West is defined in terms of binary oppositions, “a violent hierarchy” where “one of the two terms governs the other.” Within the white/ black binary opposition in the United States, the African American is defined as a devalued other.*[13]

An example of a binary opposition is the male-female dichotomy. A post-structuralist view is that *male* can be seen, according to traditional Western thought, as dominant over *female* because *male* is the presence of a phallus, while the vagina is an absence or loss. John Searle has suggested that the concept of binary oppositions—as taught and practiced by postmodernists and poststructuralist—is specious and lacking in rigor. * [14]

7.2 Deconstruction of Western binaries

The political (rather than analytic or conceptual) critique of binary oppositions is an important part of *third wave feminism*, *post-colonialism*, *post-anarchism*, and *critical race theory*, which argue that the perceived binary dichotomy between man/woman, civilized/uncivilised, and white/black have perpetuated and legitimized Western power structures favoring “civilized white men.” In the last fifteen years it has become routine for many social and/or historical analyses to address the variables of gender, class, sexuality, race and ethnicity. * [15] Within each of these categories there is usually an unequal binary opposition: bourgeoisie/ working class man; white/people of colour; men/women; heterosexual/homosexual. * [15]

Post-structural criticism of binary oppositions is not simply the reversal of the opposition, but its *deconstruction*, which is described as apolitical—that is, not intrinsically favoring one arm of a binary opposition over the other. Deconstruction is the “event” or “moment” at which a binary opposition is thought to contradict itself, and undermine its own authority. * [16]

Deconstruction assumes all binary oppositions need to be analyzed and criticized in all their manifestations; the function of both logical and *axiological* oppositions must be studied in all *discourses* provide meaning and values. But deconstruction does not only expose how oppositions work and how meaning and values are produced in a *nihilistic* or *cynic* position, “thereby preventing any means of intervening in the field effectively”. To be effective, and simply as its mode of practice, deconstruction creates new notions or concepts, not to synthesize the terms in opposition, but to mark their difference, undecidability, and eternal interplay. * [17]

7.3 In Relation to Logocentrism

Logocentrism is an idea related to Binary Opposition that suggests certain audiences will favour one part of a binary opposition pair over the other. This favouritism is often most strongly influenced by a readers' cultural background. The strong patriarchal themes in 'The Women and the Pot', an Amharic folktale, would be one such example of logocentrism. This tells the story of two women who are upset at their diminished role in society, and who consequently go to their King for help. He effectively conveys the message that women cannot be relied upon to take on a greater role in society, which becomes the moral of the tale. Prasad explains this idea; “The logocentric value is seen through the 'Eternal Knowledge' – the naturalness of male superiority – that is conveyed through the folktale. The hidden a priori binary opposition is 'Man over Woman'.” * [18] In relation to the cultural heritage of an audience having an influence on their unconscious preference for one part of a binary opposition, Prasad says; “By way of studying a selection of Ethiopian folktales, the paper uncovers the presence of logocentrism and a priori binary opposition being at work in Ethiopian folktales. These two elements attempt to endorse and validate the 'given' subservient position of women in society” . * [19]

7.4 Binary Opposition in Literature

Binary opposition is deeply embedded within literature as language, and paired opposites, rely upon a relation with adjoining words inside a paradigmatic chain. If one of the paired opposites were removed the other's precise meaning would be altered. * [20] Binary opposites, therefore, are at the foundation of all literature. Two examples will explore this.

The Harry Potter series. In Harry Potter there is the magical and non-magical community, but there are exceptions to these categories in which there is no existing category, half-bloods and muggle (human) born (paradigm). The evil wizard Voldemort seeks to eradicate these that do not fit within these categories as he believes there should only be fully fledged magical and non magical community. This leads to a binary system in which what Voldemort is insisting on creating is a world where the fully fledged pure blooded wizards are the favoured of the binary opposites (pure bloods as oppose to half-bloods and muggle-born) and the muggle-born and half-blood are the disfavoured of the

two. With the ideology of the pure bloods being pursued it would leave to the bias and cultural change that there is only one distinction between classes, the categories are only pure blooded members of the magical community or non magical.

Vampire Academy, a series of novels by Richelle Mead, draws upon the conventional binary ideologies of Western culture, whether intentional or not. There are Strigoi – inherently evil vampires confined to the night – and Moroi and dhampir, weaker vampires who can venture into daylight. The novels play upon the binary opposition theory and its secondary levels; night and day are: evil/good, other/normal, disliked/liked, ugly/handsome. The evil Strigoi vampires attempt to vanquish the Moroi throughout the novels, signifying a binary system in which the strong would dominate and exploit the weak. Mead’s use of the binary system is presenting readers with an example of how dangerous it is for one group to possess such power, and how it may result in evil deeds.

On the contrary, Harper Lee’s *To Kill A Mockingbird* disrupts this conventional twofold hierarchy by utilizing the second level of binaries. Lee has broken the illusion that ‘black’ is ‘bad’ and white is ultimately ‘good’. The plot focuses on a case involving a black man – Tom Robinson – who was accused of raping a white woman, Mayella. Mayella, with her bruises and ethnicity as a defence, was believed by the townspeople instantly. The novel explores concepts of racism and stereotyping with the help of the binary system. In the end it is revealed that Mayella lied and her father was the one who beat her. In the context of the story, however, racism still prevails. The binary system, however, highlights the injustice of preconceived connotations attached to race and colour.

In addition, binary opposition was explored in children’s literature and it was found that authors were reinforcing Westernized images and philosophies of feminism via the binary hierarchy.* [21] Western authors were creating a representation of non-Western countries based on colonial discourse, using binary oppositions to categorize human behaviour into one term or another – not both. The non-Western woman, therefore, was “the opposite or ‘other’ to women and girls from the West”.* [21] Thus, Western authors are establishing imperialist binaries between cultures, with the us/other binary opposition alongside that of the men/women. Doing so is not only undermining the entire ideology of feminism, but is also revealing of how societies work: in binaries.

7.5 See also

- Dichotomy
- Gender binary
- Opposite (semantics)
- Polarization (politics)

7.6 Notes

- [1] Smith, G. (1996). “Binary opposition and sexual power in *Paradise Lost*” . *Midwest Quarterly* **27** (4): 383.
- [2] Baldick, C 2004. The concise Oxford Dictionary of literary terms, viewed 8 March 2011, <http://www.highbeam.com/doc/1056-binaryopposition.html>
- [3] Fogarty, S 2005, The literary encyclopedia, viewed 6 March 2011, <http://www.litencyc.com/php/stopics.php?pec=true&UID=122>
- [4] Lacey, N 2000, *Narrative and Genre*, p.64, Palgrave, New York.
- [5] Lacey, N 2000, *Narrative and Genre*, p. 65, Palgrave, New York
- [6] Goody 1977, p. 36
- [7] Fourie, Pieter (2001). *Media Studies Volume 2: Content, Audiences and Production*. Lansdowne: Juta Education.
- [8] Britannica 2011, Binary opposition, viewed 9 March 2011, <http://www.britannica.com/EBchecked/topic/65552/binary-opposition>
- [9] Maleki, Nasser. “Contextualising Kathleen Raine's selected poems in the light of Derridean model of deconstruction” . *Journal of Language and Literature* **5** (2): 67.
- [10] Maleki, Nasser. “Contextualising Kathleen Raine's selected poems in the light of Derridean model of deconstruction” . *Journal of Language and Literature* **5** (2): 68.

- [11] Maleki, Nesser. "5. Contextualising Kathleen Raine's selected poems in the light of Derridean model of deconstruction" . *Journal of Language and Literature* 5 (2): 68.
- [12] Derrida, Jacques (1992). *Positions*. p. 41.
- [13] Hogue, W. (2008). "Radical democracy, African American subjectivity and John Edgar Wideman's Philadelphia Fire" . *Melus* 33 (3): 48. doi:10.1093/melus/33.3.45.
- [14] In 1983, American philosopher John Searle reviewed Johnathan Culler's *On Deconstruction: Theory and Criticism after Structuralism* for the *New York Review of Books*, writing,
- "In Culler's book, we get the following examples of knowledge and mastery [attained from analysis of binary opposites and deconstruction]: speech is a form of writing (passim), presence is a certain type of absence (p. 106), the marginal is in fact central (p. 140), the literal is metaphorical (p. 148), truth is a kind of fiction (p. 181), reading is a form of misreading (p. 176), understanding is a form of misunderstanding (p. 176), sanity is a kind of neurosis (p. 160), and man is a form of woman (p. 171). Some readers may feel that such a list generates not so much feelings of mastery as of monotony. There is in deconstructive writing a constant straining of the prose to attain something that sounds profound by giving it the air of a paradox, e.g., "truths are fictions whose fictionality has been forgotten" (p. 181).
- [15] Dunk, T 1997, 'White guys: studies in post-modern domination and difference', *Labour*, vol. 40, p. 306, (online Infotrac).
- [16] "One sometimes gets the impression that deconstruction is a kind of game that anyone can play. One could, for example, invent a deconstruction of deconstructionism as follows: In the hierarchical opposition, deconstruction/logocentrism (phono-phallo-logocentrism), the privileged term "deconstruction" is in fact subordinate to the devalued term "logocentrism," for, in order to establish the hierarchical superiority of deconstruction, the deconstructionist is forced to attempt to represent its superiority, its axiological primacy, by argument and persuasion, by appealing to the logocentric values he tries to devalue. But his efforts to do this are doomed to failure because of the internal inconsistency in the concept of deconstructionism itself, because of its very self-referential dependence on the authority of a prior logic. By an *aporetical Aufhebung*, deconstruction deconstructs itself." Searle, *ibid*.
- [17] Cf., Jacques Derrida, "Positions" (The University of Chicago Press, 1981), pp. 41-43
- [18] Prasad, A. "8. Logocentrism and a priori Binary Opposition vis-a-vis Women. Politics in Ethiopia Folktales- A Study of Selected Ethiopian Folktales" . *Fabula* 48 (1-2): 108.
- [19] Prasad, A. "8. Logocentrism and a priori Binary Opposition vis-a-vis Women. Politics in Ethiopia Folktales- A Study of Selected Ethiopian Folktales" . *Fabula* 48 (1-2): 108.
- [20] Barry, P., 2009. *Beginning Theory: An Introduction to Literary and Cultural Theory*. 3rd ed. New York, USA: Manchester University Press.
- [21] Varga-Dobai, K., 2013. Gender Issues in Multicultural Children's Literature - Black and Third-World Feminist Critiques of Appropriation, Essentialism, and Us/Other Binary Oppositions. *Multicultural Perspectives*, 15(3), pp. 141 - 147.

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Chapter 8

Black-and-white dualism



The Last Judgement by Viktor Vasnetsov.

The hues **white and black** are widely used to depict opposites. Visually, white and black offer a high contrast. In Western culture, white and black traditionally symbolize the dichotomy of good and evil, metaphorically related to

light and darkness and day and night. The dichotomy of light and darkness appears already in the Pythagorean *Table of Opposites*.

- in religion and mythology
 - The Genesis creation narrative has God “separate light from darkness” on the First Day.
 - *War of the Sons of Light Against the Sons of Darkness*
 - The underworld (Hades, Tartarus) was imagined as a chthonic place of darkness, contrasting with the celestial realm of the gods. Christian notions of heaven and hell inherit this conception, as do the "dark angels" vs. the unfallen angels, often with aureola (halos), in Christian mythology.
- "Black and white thinking" is the false dichotomy of assuming anything not good is evil and vice versa.
- Dress
 - White often represents purity or innocence in Western culture, ^[1] particularly as white clothing or objects are easy to stain. In most Western countries white is the color worn by brides at weddings. Angels are typically depicted as clothed in white robes. In many Hollywood Westerns, bad cowboys wear black hats while the good ones wear white. Melodrama villains are dressed in black and heroines in white dresses. Evil witches are stereotypically dressed in black and good fairies in white.
 - This can be reversed as a deliberate play on conventions, by having the evil character dress in white, as a symbol of their hypocrisy or arrogance. For example, Don Fanucci in "The Godfather, Part II" is an evil character, but wears an expensive all-white suit as a sign of his esteem, power and prestige. Sometimes protagonists can wear black too, as in *Star Wars Episode VI: Return of the Jedi*, wherein Luke Skywalker wears black during the final battle.
 - In computer security, a black hat is an attacker with evil intentions, while a white hat bears no such ill will. (This is derived from the Western movie convention.)
- Magic
 - Healing or “good” paranormal magic is called White magic. Black magic is a destructive or evil form of magic.
 - A Treatise on White Magic is a book by Alice Bailey, a Theosophist. ^[2]
 - White witch.
- The Yin and yang symbol (太极图 tàijítú), attributed to Lái Zhī-Dé (1525–1604).
- The Dark Ages vs. the Age of Enlightenment.
- As shown in *The Lord of the Rings*, the antagonist is Sauron, who is the "Dark Lord."

The topos of “light and darkness” is also reflected in numerous titles in popular culture, such as *Heart of Darkness* (1899), *Light in My Darkness* (1927), *Darkness and the Light* (1942), *Creatures of Light and Darkness* (1969), *From Darkness to Light* (1973), *Darkness and Light* (1989), *The Lord of the Light and of the Darkness* (1993), the *Star Trek: Deep Space 9* episode "The Darkness and the Light" (1997), the *Babylon 5* episode "Between the Darkness and the Light" (1997), and *Out of the Darkness, Into the Light* (1998).

George Orwell makes a bitterly ironic use of the “light and darkness” topos in his *Nineteen Eighty Four*. In the early part of the book the protagonist is getting a promise that “We will meet in the place where there is no darkness” - which he interprets as referring to a place where the oppressive totalitarian state does not rule. But the man who made the promise was in fact an agent of the Thought Police - and they eventually meet as prisoner and interrogator where there is indeed no darkness, in detention cells where the light remains on permanently, day and night, as an additional means of torturing detainees.

8.1 See also

- Fantasy tropes and conventions
- Dialectics of Nature

- Table of Opposites
- Yin and yang
- Gender-neutral language

8.2 References

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Chapter 9

Catch-22 (logic)

A **catch-22** is a **paradoxical** situation from which an individual cannot escape because of contradictory rules. * [1] [2] For example: *To apply for this job, you would have to be insane; but if you are insane, you are unacceptable.* Catch-22s often result from rules, regulations, or procedures that an individual is subject to but has no control over because to fight the rule is to accept it. Another example is a situation in which someone is in need of something that can only be had by not being in need of it. One connotation of the term is that the creators of the “catch-22” have created arbitrary rules in order to justify and conceal their own abuse of power.

9.1 Origin and meaning

Joseph Heller coined the term in his 1961 novel *Catch-22*, which describes absurd bureaucratic constraints on soldiers in World War II. The term is introduced by the character Doc Daneeka, an army psychiatrist who invokes “Catch 22” to explain why any pilot requesting mental evaluation for insanity—hoping to be found not sane enough to fly and thereby escape dangerous missions—demonstrates his own sanity in making the request and thus cannot be declared insane. * [3]

“You mean there's a catch?”

“Sure there's a catch”, Doc Daneeka replied. “Catch-22. Anyone who wants to get out of combat duty isn't really crazy.”

There was only one catch and that was Catch-22, which specified that a concern for one's own safety in the face of dangers that were real and immediate was the process of a rational mind. Orr was crazy and could be grounded. All he had to do was ask; and as soon as he did, he would no longer be crazy and would have to fly more missions. Orr would be crazy to fly more missions and sane if he didn't, but if he was sane, he had to fly them. If he flew them, he was crazy and didn't have to; but if he didn't want to, he was sane and had to. Yossarian was moved very deeply by the absolute simplicity of this clause of Catch-22 and let out a respectful whistle.

Different formulations of “Catch-22” appear throughout the novel. The term is applied to various loopholes and quirks of the military system, always with the implication that rules are inaccessible to and slanted against those lower in the hierarchy. In chapter 6, Yossarian is told that Catch-22 requires him to do anything his commanding officer tells him to do, regardless of whether these orders contradict orders from the officer's superiors. * [4]

In a final episode, Catch-22 is described to Yossarian by an old woman recounting an act of violence by soldiers: * [5] [6]

“Catch-22 says they have a right to do anything we can't stop them from doing.”

“What the hell are you talking about?” Yossarian shouted at her in bewildered, furious protest. “How did you know it was Catch-22? Who the hell told you it was Catch-22?”

“The soldiers with the hard white hats and clubs. The girls were crying. 'Did we do anything wrong?' they said. The men said no and pushed them away out the door with the ends of their clubs. 'Then why are you chasing us out?' the girls said. 'Catch 22,' the men said. All they kept saying was 'Catch-22, Catch-22. What does it mean, Catch 22? What is Catch-22?'”

“Didn't they show it to you?” Yossarian demanded, stamping about in anger and distress. “Didn't you even make them read it?”

“They don't have to show us Catch-22,” the old woman answered. “The law says they don't have to.”

“What law says they don't have to?”

“Catch-22” .

According to literature professor Ian Gregson, the old woman's narrative defines “Catch-22” more directly as the “brutal operation of power” , stripping away the “bogus sophistication” of the earlier scenarios.*[7]

9.1.1 Other appearances in the novel

Besides referring to an unsolvable logical **dilemma**, Catch-22 is invoked to explain or justify the military bureaucracy. For example, in the first chapter, it requires Yossarian to sign his name to letters that he censors while he is confined to a hospital bed. One clause mentioned in chapter 10 closes a loophole in promotions, which one private had been exploiting to regain the attractive rank of **Private First Class** after any promotion. Through **courts-martial** for going **AWOL**, he would be busted in rank back to private, but Catch-22 limited the number of times he could do this before being sent to the stockade.

At another point in the book, a prostitute explains to Yossarian that she cannot marry him because he is crazy, and she will never marry a crazy man. She considers any man crazy who would marry a woman who is not a virgin. This closed logic loop clearly illustrated Catch-22 because by her logic, all men who refuse to marry her are sane and thus she would consider marriage; but as soon as a man agrees to marry her, he becomes crazy for wanting to marry a non-virgin, and is instantly rejected.

At one point, Captain Black attempts to pressure Milo into depriving Major Major of food as a consequence of not signing a loyalty oath that Major Major was never given an opportunity to sign in the first place. Captain Black asks Milo, “You're not against Catch-22, are you?”

In chapter 40, Catch-22 forces Colonels Korn and Cathcart to promote Yossarian to Major and ground him rather than simply sending him home. They fear that if they do not, others will refuse to fly, just as Yossarian did.

9.1.2 Significance of the number 22

Main articles: [Catch-22 § Explanation of the novel's title and Catch-22](#)

Heller originally wanted to call the phrase, and hence the book, by other numbers, but he and his publishers eventually settled on 22. The number has no particular significance; it was chosen more or less for **euphony**. The title was originally *Catch-18*, but Heller changed it after the popular *Mila 18* was published a short time beforehand.*[8]*[9]

9.2 Usage

The term “catch-22” has filtered into common usage in the English language.*[2] In a 1975 interview, Heller said the term would not translate well into other languages.*[9]

James E. Combs and Dan D. Nimmo suggest that the idea of a “catch-22” has gained popular currency because so many people in modern society are exposed to frustrating bureaucratic logic. They write:

Everyone, then, who deals with organizations understands the bureaucratic logic of Catch-22. In high school or college, for example, students can participate in student government, a form of self-government and democracy that allows them to decide whatever they want, just so long as the principal or dean of students approves. This bogus democracy that can be overruled by arbitrary fiat is perhaps a citizen's first encounter with organizations that may profess 'open' and libertarian values, but in fact are closed and hierarchical systems. Catch-22 is an organizational assumption, an unwritten law of informal power that excepts the organization from responsibility and accountability, and puts the individual in the absurd position of being excepted for the convenience or unknown purposes of the organization.*[6]

Along with George Orwell's "doublethink", "Catch-22" has become one of the best-recognized ways to describe the predicament of being trapped by contradictory rules.*[10]

9.3 Logic

The archetypal *catch-22*, as formulated by Heller, involves the case of John Yossarian, a U.S. Army Air Forces bombardier, who wishes to be grounded from combat flight. This will only happen if he is evaluated by the squadron's flight surgeon and found "unfit to fly". "Unfit" would be any pilot who is willing to fly such dangerous missions, as one would have to be mad to volunteer for possible death. However, to be evaluated, he must *request* the evaluation, an act that is considered sufficient proof for being declared sane. These conditions make it impossible to be declared "unfit".

The "Catch-22" is that "anyone who wants to get out of combat duty isn't really crazy".*[11] Hence, pilots who request a mental fitness evaluation *are* sane, and therefore must fly in combat. At the same time, if an evaluation is not requested by the pilot, he will never receive one and thus can never be found insane, meaning he must also fly in combat.

Therefore, Catch-22 ensures that no pilot can ever be grounded for being insane even if he is.

A logical formulation of this situation is:

Philosophy professor Laurence Goldstein argues that the "airman's dilemma" is logically not even a condition that is true under no circumstances; it is a "vacuous biconditional" that is ultimately meaningless. Goldstein writes:*[12]

The catch is this: what looks like a statement of the conditions under which an airman can be excused flying dangerous missions reduces not to the statement

(i) 'An airman can be excused flying dangerous missions if and only if Cont' (where 'Cont' is a contradiction)

(which could be a mean way of disguising an unpleasant truth), but to the worthlessly empty announcement

(ii) 'An airman can be excused flying dangerous missions if and only if it is not the case that an airman can be excused flying dangerous missions'

If the catch were (i), that would not be so bad – an airman would at least be able to discover that under no circumstances could he avoid combat duty. But Catch-22 is worse – a welter of words that amounts to nothing; it is without content, it conveys no information at all.

9.4 See also

- Begging the question
- Cornelian dilemma
- Deadlock
- Double bind
- False dilemma
- Irony process theory
- List of paradoxes
- Mu
- No-win situation
- Pyrrhic victory
- Social trap
- Strange loop
- Vicious circle

9.4.1 Related stories and logic problems

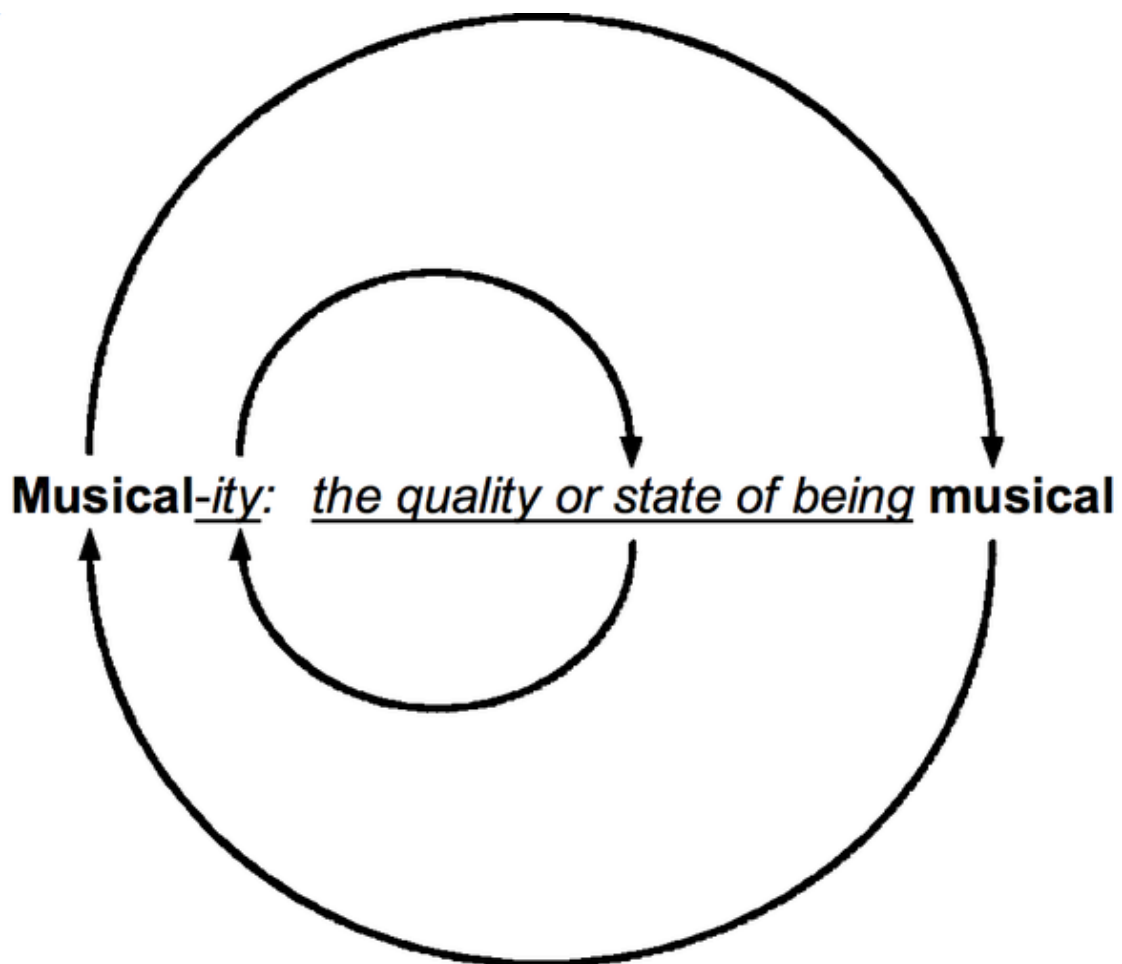
- **Hobson's choice** – Choice between taking what is offered and taking nothing; named after James Hobson, owner of a livery stable who required his customers to take the horse nearest the door or no horse at all.
- **Kobayashi Maru** – A scenario involving a choice presented to a cadet in *Star Trek* where they either violate military regulations concerning the rendering of aid to a freighter crippled by a mine and in imminent threat of destruction, or violate the terms of a peace treaty by crossing into enemy territory (where the freighter lies in distress), risking one's company and crew to attempt to save the crippled freighter, and committing an act of war in the process of violating that treaty (Note: The test is secretly rigged to end in an unwinnable battle if the cadet tries to rescue the freighter. The real test is how the cadet deals with failing it.)
- **The Lady, or the Tiger?** – A short story involving a princess who must make a decision in a no-win situation
- **Morton's Fork**
- **Ninety-ninety rule**
- **Zugzwang**

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Chapter 10

Circular definition



Circular definition of “musicality”

A **circular definition** is one that uses the **term(s)** being defined as a part of the **definition** or assumes a prior understanding of the term being defined. There are several kinds of circular definition, and several ways of characterising the term: pragmatic, lexicographic and linguistic.

10.1 Approaches to characterizing circular definitions

From a pragmatic point of view, circular definitions may be characterised in terms of new, useful or helpful information: either the audience must already know the meaning of the key term(s), or the definition is deficient in including the term(s) to be defined in the definition itself. Such definitions lead to a need for additional information that motivated someone to look at the definition in the first place and, thus, violate the principle of providing new or useful information. If someone wants to know what a **cellular phone** is, telling them that it is a “phone that is cellular” will not be especially illuminating. Much more helpful would be to explain the concept of a cell in the context of telecommunications, or at least to make some reference to portability. Similarly, defining **dialectical materialism** as “materialism that involves dialectic” is unhelpful. For another example, we can define “oak” as a **tree** which has **catkins** and grows from an acorn, and then define “acorn” as the **nut** produced by an oak tree. To someone who does not know which trees are oaks, nor which nuts are acorns, the definition is inadequate. Consequently, many systems of definitions are constructed according to the **vicious circle principle** in such a way that authors do not produce viciously circular definitions.

From a lexicographic point of view, the simplest form of circular definition in a dictionary is in terms of synonyms, and the number of steps for closing the definition chain into a circle is known as the **depth** of the circular definition: the circular definition “object: a thing” → “thing: an object” is a circular definition with a depth of two. The circular definition “object: a thing” → “thing: an entity” → “entity: an object” has a depth of three. The classic “genus-difference” dictionary definition is in terms of nearest kind (genus proximum) and specific differences (differentia specifica), and may also be involved in circular definitions: “rake: an implement with three or more tines” → “tine: a part of a rake”. However, if more specific differences are added, then the circularity may disappear: “rake: a gardening implement with a long handle with three or more tines arranged on crossbar at 90° to the handle and the tines at 90° to both crossbar and handle”; in this case, “tine” is most usefully defined with reference to “rake”, also with additional differences providing points of comparison, e.g.: “tine: a sharp spike at the end of a rake”. In practice, a pragmatic approach is often taken in dictionary definitions.

From a linguistic point of view, some intuitively circular definitions in the **derivation** of words can easily be shown to be non-circular. For example, sometimes a definition like “musicality: the quality or state of being musical” (see Figure) is said to be circular. But strictly speaking, the condition “the **term(s)** being defined as a part of the **definition** or assumes a prior understanding of the term being defined” is false in this case. The definition chain “musicality: the quality or state of being musical” → “musical: associated with music” → “music: an acoustic art form” is a two-step derivation of the word “musicality” from the root “music”, where the chain ends. A definition chain which ends not circular. It may be objected that the term to be defined and one of the difference terms in the definition share the same root; the answer is that the objection requires prior analysis of the terms in order to identify identical parts, yet the terms themselves cannot be reduced to these parts: the meaning of “musicality” is composed of the meaning of “musical” and the meaning of “ity”, the meaning of “musical” is composed of the meaning of “music” and “al”. In each case, the terms to be defined and the terms in the definition are different.

Formal approaches to characterizing circular definitions are found in **logic**, **mathematics** and in **computer science**. A branch of mathematics called **non-well-founded set theory** allows for the construction of circular sets. Circular sets are good for modelling cycles and, despite the field’s name, this area of mathematics is well founded. **Computer science** allows for procedures to be defined by using **recursion**. Such definitions are not circular as long as they terminate.

10.2 Circular lexicographic (dictionary) definitions

Dictionaries are sometimes used erroneously as sources for examples of circular definition. Dictionary production, as a project in **lexicography**, should not be confused with a **mathematical** or **logical** activity, where giving a definition for a word is similar to providing an **explanans** for an **explanandum** in a context where practitioners are expected to use a **deductive system**.^[1]^[2] While, from a **linguistic prescriptivist** perspective, any **dictionary** might be believed to dictate correct usage, the **linguistic descriptivist** perspective recognizes that looking up words in dictionaries is not itself a rule-following practice independent of the give-and-take of using words in context.^[2] Thus, the example of a definition of oak given above (something that has catkins and grows from acorns) is not completely useless, even if “acorn” and “catkin” are defined in terms of “oak”, in that it supplies additional concepts (e.g., the concept of catkin) in the definition. While a dictionary might produce a “circle” among the terms, “oak”, “catkin”, and “acorn”, each of these is used in different contexts (e.g., those related to plants, trees, flowers, and seeds) that generate ever-branching networks of usages.

A circular definition crept into the classic definition of death that was once “the permanent cessation of the flow of

vital bodily fluids” , which raised the question “what makes a fluid vital?”* [3]

Definitions in lexicography can be broadly or narrowly circular. Narrowly circular definitions simply define one word in terms of another. A broadly circular definition has a larger circle of words. For example, the definition of the primary word is defined using two other words, which are defined with two other words, etc., creating a definitional chain. This can continue until the primary word is used to define one of the words used in the chain, closing the wide circle of terms. If all definitions rely on the definitions of other words in a very large, but finite chain, then all text-based definitions are ultimately circular. **Extension (semantics)** to the actual things that referring terms like nouns stand for, provided that agreement on reference is accomplished, is one method of breaking this circularity, but this is outside the capacity of a text-based definition.

10.3 Examples of narrowly circular definitions in dictionaries

The 2007 Merriam-Webster dictionary defines a “hill” and a “mountain” this way:

Hill - “1: a usually rounded natural elevation of land **lower than a mountain**”* [4]

Mountain - “1a: a landmass that projects conspicuously above its surroundings and is **higher than a hill**”* [5]

Merriam-Webster's online dictionary provides another example of a circular definition with the words “condescending” and “patronizing:”

Main Entry: condescending* [6]

Function: adjective

1 : showing or characterized by condescension : patronizing

This definition alone is close to suffering from circular definition, but following the definition train:

Main Entry: condescension* [7]

Function: noun

1 : voluntary descent from one's rank or dignity in relations with an inferior

2 : **patronizing attitude** or behavior

Looking up the word “patronizing” then gives us:

Main Entry: patronize* [8]

Function: transitive verb

1 : to act as patron of : provide aid or support for

2 : **to adopt an air of condescension toward** : treat haughtily or coolly

In the Oxford Dictionary the word “inspiring” is another example of a circular definition:

Main Entry: inspiring* [9]

Function: Adjective

1 : Having the effect of inspiring someone

In short: the two words are used to define each other.

10.4 See also

- Fallacies of definition
- Begging the question
- Tautology
- Self-reference
- Meta-circular evaluator
- Recursive definition
- Infinite regress
- Lexical definition
- Lexicography

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Chapter 11

Circular reasoning

Circular reasoning (Latin: *circulus in probando*, “circle in proving”; also known as **circular logic**) is a logical fallacy in which the reasoner begins with what they are trying to end with.* [1] The components of a circular argument are often logically valid because if the premises are true, the conclusion must be true. Circular reasoning is not a formal logical fallacy but a pragmatic defect in an argument whereby the premises are just as much in need of proof or evidence as the conclusion, and as a consequence the argument fails to persuade. Other ways to express this are that there is no reason to accept the premises unless one already believes the conclusion, or that the premises provide no independent ground or evidence for the conclusion.* [2] **Begging the question** is closely related to circular reasoning, and in modern usage the two generally refer to the same thing.* [3]

Circular reasoning is often of the form: “A is true because B is true; B is true because A is true.” Circularity can be difficult to detect if it involves a longer chain of propositions. Academic **Douglas Walton** used the following example of a fallacious circular argument:

Wellington is in New Zealand.

Therefore, Wellington is in New Zealand.* [4]

He notes that, although the argument is deductively valid, it cannot prove that Wellington is in New Zealand because it contains no evidence that is distinct from the conclusion. The context – that of an argument – means that the proposition does not meet the requirement of proving the statement; thus, it is a fallacy. He proposes that the context of a dialogue determines whether a circular argument is fallacious: if it forms part of an argument, then it is.* [4] Citing Cederblom and Paulsen 1986:109, Hugh G. Gauch observes that non-logical facts can be difficult to capture formally:

“Whatever is less dense than water will float, because whatever is less dense than water will float” sounds stupid, but “Whatever is less dense than water will float, because such objects won't sink in water” might pass.* [5]

11.1 The problem of induction

Joel Feinberg and Russ Shafer-Landau note that “using the scientific method to judge the scientific method is circular reasoning”. Scientists attempt to discover the laws of nature and to predict what will happen in the future, based on those laws. However, per **David Hume's problem of induction**, science cannot be proven inductively by empirical evidence, and thus science cannot be proven scientifically. An appeal to a *principle of the uniformity of nature* would be required to deductively necessitate the continued accuracy of predictions based on laws that have only succeeded in generalizing past observations. But as **Bertrand Russell** observed, “The method of 'postulating' what we want has many advantages; they are the same as the advantages of theft over honest toil”.* [6]

11.2 See also

- Circular reference

- *Catch-22*
- Argument from authority
- Begging the question
- Coherentism
- I'm entitled to my opinion
- Paradox
- Polysyllogism
- Self-reference
- Tautology (rhetoric)
- Woozle effect

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Chapter 12

Collectively exhaustive events

In **probability theory** and **logic**, a set of events is **jointly** or **collectively exhaustive** if at least one of the events must occur. For example, when rolling a **six-sided die**, the outcomes 1, 2, 3, 4, 5, and 6 are collectively exhaustive, because they encompass the entire range of possible outcomes.

Another way to describe collectively exhaustive events, is that their union must cover all the events within the entire sample space. For example, events A and B are said to be collectively exhaustive if

$$A \cup B = S$$

where S is the sample space...

Compare this to the concept of a set of **mutually exclusive events**. In such a set no more than one event can occur at a given time. (In some forms of mutual exclusion only one event can ever occur.) The set of all possible die rolls is both collectively exhaustive and mutually exclusive. The outcomes 1 and 6 are mutually exclusive but not collectively exhaustive. The outcomes “even” (2,4 or 6) and “not-6” (1,2,3,4, or 5) are collectively exhaustive but not mutually exclusive. In some forms of mutual exclusion only one event can ever occur, whether collectively exhaustive or not. For example, tossing a particular biscuit for a group of several dogs cannot be repeated, no matter which dog snaps it up.

One example of an event that is both collectively exhaustive and mutually exclusive is tossing a coin. The outcome must be either heads or tails, or $p(\text{heads or tails}) = 1$, so the outcomes are collectively exhaustive. When heads occurs, tails can't occur, or $p(\text{heads and tails}) = 0$, so the outcomes are also mutually exclusive.

12.1 History

The term “exhaustive” has been used in the literature since at least 1914. Here are a few examples:

The following appears as a footnote on page 23 of Couturat 1914:

“As Mrs. LADD-FRANKLIN has truly remarked (BALDWIN, Dictionary of Philosophy and Psychology, article “Laws of Thought”), the principle of contradiction is not sufficient to define contradictories; the principle of excluded middle must be added which equally deserves the name of principle of contradiction. This is why Mrs. LADD-FRANKLIN proposes to call them respectively the principle of exclusion and the *principle of exhaustion*, inasmuch as, according to the first, two contradictory terms are exclusive (the one of the other); and, according to the second, they are *exhaustive (of the universe of discourse)*.” (italics added for emphasis)

In **Stephen Kleene's** discussion of cardinal numbers in Kleene 1952, he uses “mutually exclusive” together with “exhaustive”:

“Hence, for any two cardinals M and N, the three relationships $M < N$, $M = N$ and $M > N$ are 'mutually exclusive', i.e. not more than one of them can hold. ¶ It does not appear till an advanced stage of the

theory . . . whether they are '*exhaustive*', i.e. whether at least one of the three must hold" . (italics added for emphasis, Kleene 1952:11; original has double bars over the symbols M and N).

12.2 See also

- Probability theory
- Mutually exclusive events
- Event structure

12.3 References

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Chapter 13

Complex question

A **complex question**, **trick question**, **multiple question** or *plurium interrogationum* (Latin, “of many questions”) is a **question** that has a **presupposition** that is complex. The presupposition is a **proposition** that is presumed to be acceptable to the respondent when the question is asked. The respondent becomes committed to this proposition when he gives any direct answer. The presupposition is called “complex” because it is a **conjunctive** proposition, a **disjunctive** proposition, or a **conditional** proposition. It could also be another type of proposition that contains some **logical connective** in a way that makes it have several parts that are component propositions.* [1]

Complex questions can but do not have to be **fallacious**, as in being an **informal fallacy**.* [1]

13.1 Implication by question

One form of **misleading** discourse involves presupposing and implying something without stating it explicitly, by phrasing it as a question. For example, the question “Does Mr. Jones have a brother in the army?” does not claim that he does, but implies that there must be at least some indication that he does, or the question would not need to be asked.* [2] The person asking the question is thus protected from accusations of making false claims, but still manages to make the implication in the form of a hidden **compound question**. The **fallacy** isn't in the question itself, but rather in the listener's assumption that the question would not have been asked without some evidence to support the supposition. This example seems harmless, but consider this one: “Does Mr. Jones have a brother in jail?”

In order to have the desired effect, the question must imply something uncommon enough not to be asked without some evidence to the fact. For example, the question “Does Mr. Jones have a brother?” would not cause the listener to think there must be some evidence that he does, since this form of general question is frequently asked with no foreknowledge of the answer.

13.2 Complex question fallacy

For more details on this topic, see **Loaded question**.

The complex question fallacy, or *many questions fallacy*, is context dependent; a **presupposition** by itself doesn't have to be a fallacy. It is committed when someone asks a question that presupposes something that has not been proven or accepted by all the people involved.* [1]* [3]* [4]* [5]* [6] For example, “Is Mary wearing a blue or a red dress?” is fallacious because it artificially restricts the possible responses to a blue or red dress. If the person being questioned wouldn't necessarily consent to those constraints, the question is fallacious.* [1]* [4]* [5]* [6]

Hence we can distinguish between:

- legitimately complex questions (not a fallacy): A question that assumes something that the hearer would readily agree to. For example, “Who is the **monarch of the United Kingdom**?” assumes that there is a place called the United Kingdom and that it has a monarch, both true.

- illegitimately complex question: On the other hand, “Who is the **King of France**?” would commit the complex question fallacy because while it assumes there is a place called France (true), it also assumes France currently has a king (false). But since answering this question does not seem to incriminate or otherwise embarrass the speaker, it is complex but not really a loaded question.*[7]

When a complex question contains *controversial* presuppositions (often with **loaded language** – having an unspoken and often emotive implication), it is known as a **loaded question**.*[3]*[4]*[6] For example, a classic loaded question, containing incriminating assumptions that the questioned persons seem to admit to if they answer the questions instead of challenging them, is “Have you stopped beating your wife?” If the person questioned answers, “Yes”, then that implies that he has previously beaten his wife. A loaded question may be asked to trick the respondent into admitting something that the questioner believes to be true, and which may in fact be true. So the previous question is “loaded,” whether or not the respondent has actually beaten his wife —and if the respondent answers anything other than “yes” or “no” in an attempt to deny having beaten his wife, the questioner can accuse him of “trying to **dodge the question**”. The very same question may be loaded in one context, but not in the other. For example, the previous question would not be loaded were it asked during a trial in which the defendant has already admitted to beating his wife.*[4]

13.2.1 Similar questions and fallacies

A similar fallacy is the **double-barreled question**. It is committed when someone asks a question that touches upon more than one issue, yet allows only for one answer.*[8]*[9]*[10]

This fallacy can be also confused with *petitio principii*, **begging the question**,*[11] which offers a **premise** no more plausible than, and often just a restatement of, the **conclusion**.*[12]

Closely connected with [*petitio principii*] is the fallacy of the Complex Question. By a complex question, in the broadest meaning of that term, is meant one that suggests its own answer. Any question, for instance, that forces us to select, and assert in our answer to it, one of the elements of the question itself, while some other possibility is really open, is complex in the sense in which that term is here employed. If, for example, one were to ask whether you were going to New York or London, or if your favourite colour were red or blue, or if you had given up a particular bad habit, he would be guilty of the fallacy of the complex question, if, in each case, the alternatives, as a matter of fact, were more numerous than, or were in any way different from, those stated in the question. Any leading question which complicates an issue by over simplification is fallacious for the same reason...In the *petitio principii* an assumption with respect to the subject-matter of an argument functions as a premise, in the complex question it is a similar assumption that shuts out some of the material possibilities of a situation and confines an issue within too narrow limits. As in the former case, so here, the only way of meeting the difficulty is to raise the previous question, that is, to call the assumption which lies back of the fallacy into question.*[13]
—Arthur Ernest Davies, “Fallacies” in *A Text-Book of Logic*

13.3 Notes

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Chapter 14

Conditional sentence

For the non-custodial punishment for a crime in Canada, see [Conditional sentence \(Canada\)](#).

Conditional sentences are **sentences** expressing factual implications, or hypothetical situations and their consequences. They are so called because the validity of the **main clause** of the sentence is *conditional* on the existence of certain circumstances, which may be expressed in a **dependent clause** or may be understood from the context.

A full conditional sentence (one which expresses the condition as well as its consequences) therefore contains two **clauses**: the dependent clause expressing the condition, called the **protasis**; and the main clause expressing the consequence, called the **apodosis**.^[1] An example of such a sentence (in **English**) is the following:

If it rains, the picnic will be cancelled.

Here the condition is expressed by the clause “If it rains”, this being the protasis, while the consequence is expressed by “the picnic will be cancelled”, this being the apodosis. (The protasis may either precede or follow the apodosis; it is equally possible to say “The picnic will be cancelled if it rains”.) In terms of logic, the protasis corresponds to the **antecedent**, and the apodosis to the **consequent**.

Languages use a variety of grammatical forms and constructions in conditional sentences. The forms of **verbs** used in the protasis and apodosis are often subject to particular rules as regards their **tense** and **mood**. Many languages have a specialized type of verb form called the **conditional mood** – broadly equivalent in meaning to the English “would (do something)” – for use in some types of conditional sentence.

14.1 Types of conditional sentence

There are various ways of classifying conditional sentences. One distinction is between those that state an **implication** between facts, and those that set up and refer to a **hypothetical** situation. There is also the distinction between conditionals that are considered factual or predictive, and those that are considered counterfactual or speculative (referring to a situation that did not or does not really exist).

14.1.1 Implicative and predictive

A conditional sentence expressing an *implication* (also called a *factual* conditional sentence) essentially states that if one fact holds, then so does another. (If the sentence is not a **declarative sentence**, then the consequence may be expressed as an order or a **question** rather than a statement.) The facts are usually stated in whatever **grammatical tense** is appropriate to them; there are not normally special tense or **mood** patterns for this type of conditional sentence. Such sentences may be used to express a certainty, a universal statement, a law of science, etc. (in these cases *if* may often be replaced by *when*):

If you heat water to 100 degrees, it boils.
If the sea is stormy, the waves are high.

They can also be used for logical deductions about particular circumstances (which can be in various mixtures of past, present and future):

If it's raining here now, then it was raining on the West Coast this morning.
 If it's raining now, then your laundry is getting wet.
 If it's raining now, there will be mushrooms to be picked next week.
 If he locked the door, then Kitty is trapped inside.

A *predictive* conditional sentence concerns a situation dependent on a hypothetical (but entirely possible) future event. The consequence is normally also a statement about the future, although it may also be a consequent statement about present or past time (or a question or order).

If I become President, I'll lower taxes.
 If it rains this afternoon, everybody will stay home.
 If it rains this afternoon, then yesterday's weather forecast was wrong.
 If it rains this afternoon, your garden party is doomed.
 What will you do if he invites you?
 If you see them, shoot!

14.1.2 Counterfactual

Main article: [Counterfactual conditional](#)

In a *counterfactual* or *speculative** [2] conditional sentence, a situation is described as dependent on a condition that is known to be false, or presented as unlikely. The time frame of the hypothetical situation may be past, present or future, and the time frame of the condition does not always correspond to that of the consequence. For example:

If I were king, I could have you thrown in the dungeon.
 If I won the lottery, I would buy a car.
 If he said that to me, I would run away.
 If you had called me, I would have come.
 If you had done your job properly, we wouldn't be in this mess now.

The difference in meaning between a “counterfactual” conditional with a future time frame, and a “predictive” conditional as described in the previous section, may be slight. For example, there is no great practical difference in meaning between “If it rained tomorrow, I would cancel the match” and “If it rains tomorrow, I will cancel the match” .

It is in the counterfactual type of conditional sentence that the grammatical form called the **conditional mood** (meaning something like the English “would ...”) is most often found. For the uses of particular verb forms and grammatical structures in the various types and parts of conditional sentences in certain languages, see the following sections.

14.2 Grammar of conditional sentences

Languages have different rules concerning the **grammatical** structure of conditional sentences. These may concern the **syntactic** structure of the condition clause (protasis) and consequence (apodosis), as well as the forms of verbs used in them (particularly their **tense** and **mood**). Rules for English and certain other languages are described below; more information can be found in the articles on the grammars of individual languages. (Some languages are also described in the article on the **conditional mood**.)

14.2.1 English

Main article: [English conditional sentences](#)

In English conditional sentences, the condition clause (protasis) is most commonly introduced by the **conjunction** *if*, or sometimes other conjunctions or expressions such as *unless*, *provided (that)*, *providing (that)* and *as long as*. Certain condition clauses can also be formulated using **inversion** without any conjunction (*should you fail...*; *were he to die...*; *had they helped us...*; see also the corresponding section about inversion in the [English subjunctive](#) article).

In [English language teaching](#), conditional sentences are often classified under the headings **zero conditional**, **first conditional** (or *conditional I*), **second conditional** (or *conditional II*), **third conditional** (or *conditional III*) and **mixed conditional**, according to the grammatical pattern followed.*^[3] A range of variations on these structures are possible.

Zero conditional

“Zero conditional.. refers to conditional sentences that express a simple implication (see above section), particularly when both clauses are in the present tense:

If you don't eat for a long time, you become hungry.

This form of the conditional expresses the idea that a universally known fact is being described:

If you touch a flame, you burn yourself.

The act of burning oneself only happens on the condition of the first clause being completed. However such sentences can be formulated with a variety of tenses (and moods), as appropriate to the situation.

First conditional

“First conditional” refers to predictive conditional sentences (see above section); here, normally, the condition is expressed using the present tense and the consequence using the future:

If you make a mistake, someone will let you know.

Second conditional

“Second conditional” refers to the pattern where the condition clause is in the past tense, and the consequence in **conditional mood** (using *would* or, in the first person and rarely, *should*). This is used for hypothetical, counterfactual situations in a present or future time frame (where the condition expressed is known to be false or is presented as unlikely).

If I liked parties, I would attend more of them.

If it were to rain tomorrow, I would dance in the street.

The past tense used in the condition clause is historically the **past subjunctive**; however in modern English this is identical to the past **indicative** except in certain dialects in the case of the verb *be* (first and third person singular), where the indicative is *was* and the subjunctive *were*. In this case either form may be used (*was* is more colloquial, and *were* more formal, although the phrase *if I were you* is common in colloquial language too):

If I (he, she, it) was/were rich, there would be plenty of money available for this project.

Third conditional

“Third conditional” is the pattern where the condition clause is in the **past perfect**, and the consequence is expressed using the **conditional perfect**. This is used to refer to hypothetical, counterfactual (or believed likely to be counterfactual) situations in the past

If you had called me, I would have come.

Mixed conditionals

“Mixed conditional” usually refers to a mixture of the second and third conditionals (the counterfactual patterns). Here either the condition or the consequence, but not both, has a past time reference:

If you had done your job properly, we wouldn't be in this mess now.

If we were soldiers, we wouldn't have done it like that.

14.2.2 Latin

Conditional sentences in **Latin** are traditionally classified into three categories, based on grammatical structure.

- simple conditions (factual or logical implications)
 - present tense [if *present indicative* then *indicative*]
 - past tense [if *perfect/imperfect indicative* then *indicative*]
- future conditions
 - “future more vivid” [if *future indicative* then *future indicative*]
 - “future less vivid” [if *present subjunctive* then *present subjunctive*]
- contrafactual conditions
 - “present contrary-to-fact” [if *imperfect subjunctive* then *imperfect subjunctive*]
 - “past contrary-to-fact” [if *pluperfect subjunctive* then *pluperfect subjunctive*]

14.2.3 French

In **French**, the conjunction corresponding to “if” is *si*. The use of tenses is quite similar to English:

- In implicative conditional sentences, the present tense (or other appropriate tense, mood, etc.) is used in both clauses.
- In predictive conditional sentences, the future tense or imperative generally appears in the main clause, but the condition clause is formed with the present tense (as in English). This contrasts with dependent clauses introduced by certain other conjunctions, such as *quand* (“when”), where French uses the future (while English has the present).
- In counterfactual conditional sentences, the **imperfect** is used to express the condition (where English similarly uses the past tense). The main clause contains the **conditional mood** (e.g. *j'arriverais*, “I would arrive”).
- In counterfactual conditional sentences with a past time frame, the condition is expressed using the **pluperfect** e.g. (*s'il avait attendu*, “if he had waited”), and the consequence with the **conditional perfect** (e.g. *je l'aurais vu*, “I would have seen him”). Again these verb forms parallel those used in English.

As in English, certain mixtures and variations of these patterns are possible. See also **French verbs**.

14.2.4 Italian

Italian uses the following patterns (the equivalent of “if” is *se*):

- Present tense (or other as appropriate) in both parts of an implicative conditional.
- Future tense in both parts of a predictive conditional sentence (the future is not replaced with the present in condition clauses as in English or French).
- In a counterfactual conditional, the imperfect **subjunctive** is used for the condition, and the **conditional mood** for the main clause. A more informal equivalent is to use the imperfect indicative in both parts.
- In a counterfactual conditional with past time frame, the pluperfect subjunctive is used for the condition, and the past conditional (conditional perfect) for the main clause.

See also Italian verbs.

14.2.5 Slavic languages

In **Slavic languages**, such as **Russian**, clauses in conditional sentences generally appear in their natural tense (future tense for future reference, etc.) However, for counterfactuals, a conditional/subjunctive marker such as the Russian **бы** *by* generally appears in both condition and consequent clauses, and this normally accompanies the past tense form of the verb.

See **Russian grammar**, **Bulgarian grammar**, etc. for more detail.

14.3 Logic

While the **material conditional** operator used in logic (i.e. $p \Rightarrow q$) is sometimes read aloud in the form of a conditional sentence (i.e. “if p , then q ”), the intuitive interpretation of conditional statements in natural language does not always correspond to the definition of this **mathematical relation**. Modelling the meaning of real conditional statements requires the definition of an **indicative conditional**, and contrary-to-fact statements require a **counterfactual conditional** operator, formalized in modal logic.

14.4 See also

- Anankastic conditional
- English modal auxiliary verb
- Conditional mood
- Subjunctive mood

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14.6 External links

- [Using conditional clauses in English with clear examples](#)
- [English conditional clauses explanations with examples](#)
- [Latin Conditionals](#)
- [French Conditionals](#)

Chapter 15

Consequentia mirabilis

Consequentia mirabilis (Latin for “admirable consequence”), also known as **Clavius's Law**, is used in traditional and classical logic to establish the truth of a proposition from the inconsistency of its negation.* [1] It is thus similar to *reductio ad absurdum*, but it can prove a proposition true using just its negation. It states that if a proposition is a consequence of its negation, then it is true, for consistency. It can thus be demonstrated without using any other principle, but that of consistency. (Barnes* [2] claims in passing that the term 'consequentia mirabilis' refers only to the inference of the proposition from the inconsistency of its negation, and that the term 'Lex Clavia' (or Clavius' Law) refers to the inference of the proposition's negation from the inconsistency of the proposition.)

In formal notation: $(\neg A \rightarrow A) \rightarrow A$ which is equivalent to $(\neg\neg A \vee A) \rightarrow A$.

Consequentia mirabilis was a pattern of argument popular in 17th century Europe that first appeared in a fragment of Aristotle's *Protrepticus*: “If we ought to philosophise, then we ought to philosophise; and if we ought not to philosophise, then we ought to philosophise (i.e. in order to justify this view); in any case, therefore, we ought to philosophise.”* [3]

The most famous example is perhaps the Cartesian *cogito ergo sum*: Even if one can question the validity of the thinking, no one can deny that they are thinking.

15.1 See also

- *Ex falso quodlibet*
- *Tertium non datur*

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Chapter 16

Critical discourse analysis

Critical discourse analysis (CDA) is an interdisciplinary approach to the study of **discourse** that views language as a form of **social practice**. Scholars working in the tradition of CDA generally assume that (non-linguistic) social practice and linguistic practice constitute one another and focus on investigating how societal power relations are established and reinforced through language use. ^[1]

16.1 Background

Critical discourse analysis emerged from 'critical linguistics' developed at the **University of East Anglia** in the 1970s, and the terms are now often interchangeable. ^[2]^[3] **Sociolinguistics** was paying little attention to social hierarchy and power. ^[4] CDA was first developed by the **Lancaster school** of linguists of which **Norman Fairclough** was the most prominent figure. **Ruth Wodak** has also made a remarkable contribution to this field of study.

In addition to **linguistic** theory, the approach draws from social theory —and contributions from **Karl Marx**, **Antonio Gramsci**, **Louis Althusser**, **Jürgen Habermas**, **Michel Foucault** and **Pierre Bourdieu** —in order to examine ideologies and power relations involved in discourse. Language connects with the social through being the primary domain of **ideology**, and through being both a site of, and a stake in, struggles for power. ^[1] Ideology has been called the basis of the social representations of groups, and, in psychological versions of CDA developed by **Teun A. van Dijk** and **Ruth Wodak**, there is assumed to be a sociocognitive interface between **social structures** and discourse structures. ^[5] The historical dimension in critical discourse studies also plays an important role. ^[6]

16.2 Methodology

Although CDA is sometimes mistaken to represent a 'method' of **discourse analysis**, it is generally agreed upon that any explicit method in discourse studies, the humanities and social sciences may be used in CDA research, as long as it is able to adequately and relevantly produce insights into the way discourse reproduces (or resists) social and political inequality, power abuse or domination. That is, CDA does not limit its analysis to specific structures of text or talk, but systematically relates these to structures of the **sociopolitical** context.

Norman Fairclough developed a three-dimensional framework for studying discourse, where the aim is to map three separate forms of analysis onto one another: analysis of (spoken or written) language texts, analysis of discourse practice (processes of text production, distribution and consumption) and analysis of discursive events as instances of sociocultural practice. ^[1]^[7] Particularly, he combines micro, meso and macro-level interpretation. At the micro-level, the analyst considers various aspects of textual/linguistic analysis, for examples syntactic analysis, use of metaphor and rhetorical devices. The meso-level or “level of discursive practice” involves studying issues of production and consumption, for instance, which institution produced a text, who is the target audience, etc. At the macro-level, the analyst is concerned with **intertextual** and interdiscursive elements and tries to take into account the broad, societal currents that are affecting the text being studied. ^[8]^[9]

16.3 Notable academics

Notable writers include Norman Fairclough, Michał Krzyżanowski, Paul Chilton, Teun A. van Dijk, Ruth Wodak, Phil Graham, Theo Van Leeuwen, Siegfried Jäger, Christina Schäffner, James Paul Gee, Roger Fowler, Gunther Kress, Mary Talbot, Lilie Chouliaraki, Thomas Huckin, Hilary Janks, Veronika Koller and Bob Hodge.

16.4 See also

- Argumentation theory
- Conceptual history
- Critical theory
- Informal logic
- Hermeneutics
- Linguistic anthropology
- Mediated Stylistics
- Pragma-dialectics
- Pragmatics
- Rhetoric
- Semiotics
- Systemic functional grammar

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16.6 External links

- [Discourseanalysis.net](#) Research portal and mailing list
- [Critical Approaches to Discourse Analysis Across Disciplines](#) Research portal and conference
- [Discourses.org](#) Website of Teun van Dijk
- [Norman Fairclough's profile page](#)

16.6.1 Research groups associated with CDA

- [Language, Ideology and Power research group at Lancaster University](#)
- [Newcastle Critical Discourse Group](#)
- [Discourse and Rhetoric group at Loughborough University](#)

16.6.2 Journals associated with CDA

- [Discourse & Society](#) (from 1990)
- [Social Semiotics](#) (from 1990)
- [Journal of Language and Politics](#) (from 2002)
- [Critical Discourse Studies](#) (from 2004)
- [Critical Approaches to Discourse Analysis Across Disciplines](#) (peer-reviewed free online journal, from 2007)

Chapter 17

Critical theory

“Critical sociology” redirects here. For the journal, see [Critical Sociology \(journal\)](#).

Critical theory is a school of thought that stresses the reflective assessment and **critique** of **society** and **culture** by applying knowledge from the **social sciences** and the **humanities**. As a term, *critical theory* has two meanings with different origins and histories: the first originated in **sociology** and the second originated in **literary criticism**, whereby it is used and applied as an **umbrella term** that can describe a theory founded upon **critique**; thus, the theorist **Max Horkheimer** described a theory as critical insofar as it seeks “to liberate human beings from the circumstances that enslave them.” ^[1]

In sociology and **political philosophy**, the term *critical theory* describes the **neo-Marxist philosophy** of the **Frankfurt School**, which was developed in Germany in the 1930s. Frankfurt theorists drew on the critical methods of **Karl Marx** and **Sigmund Freud**. Critical theory maintains that **ideology** is the principal obstacle to human liberation. ^[2] Critical theory was established as a school of thought primarily by five Frankfurt School theoreticians: **Herbert Marcuse**, **Theodor Adorno**, **Max Horkheimer**, **Walter Benjamin**, and **Erich Fromm**. Modern critical theory has additionally been influenced by **György Lukács** and **Antonio Gramsci**, as well as the second generation Frankfurt School scholars, notably **Jürgen Habermas**. In Habermas's work, critical theory transcended its theoretical roots in **German idealism**, and progressed closer to **American pragmatism**. Concern for social “**base and superstructure**” is one of the remaining **Marxist** philosophical concepts in much of the contemporary critical theory. ^[3]

While critical theorists have been frequently defined as Marxist intellectuals, ^[4] their tendency to denounce some Marxist concepts and to combine Marxian analysis with other sociological and philosophical traditions has resulted in accusations of **revisionism** by **Classical**, **Orthodox**, and **Analytical Marxists**, and by **Marxist-Leninist** philosophers. **Martin Jay** has stated that the first generation of critical theory is best understood as not promoting a specific philosophical agenda or a specific **ideology**, but as “a gadfly of other systems” . ^[5]

17.1 Definitions

The two meanings of critical theory—from different intellectual traditions associated with the meaning of criticism and critique—derive ultimately from the Greek word κριτικός, *kritikos* meaning judgment or discernment, and in their present forms go back to the 18th century. While they can be considered completely independent intellectual pursuits, increasingly scholars are interested in the areas of critique where the two overlap.

To use an **epistemology** distinction introduced by **Jürgen Habermas** in *Erkenntnis und Interesse* [1968] (*Knowledge and Human Interests*), critical theory in literary studies is ultimately a form of **hermeneutics**; i.e., knowledge via interpretation to understand the meaning of human texts and symbolic expressions—including the interpretation of texts which themselves interpret other texts. Critical social theory is, in contrast, a form of self-reflective knowledge involving both understanding and theoretical explanation which aims to reduce entrapment in systems of domination or dependence.

From this perspective, much literary critical theory, since it is focused on interpretation and explanation rather than on social transformation, would be regarded as positivistic or traditional rather than critical theory in the Kantian or Marxian sense. Critical theory in literature and the humanities in general does not necessarily involve a **normative**

dimension, whereas critical social theory does, either through criticizing society from some general theory of values, norms, or “oughts,” or through criticizing it in terms of its own espoused values.

17.2 In social theory

Main article: Frankfurt School

Critical theory was first defined by Max Horkheimer of the Frankfurt School of sociology in his 1937 essay *Traditional and Critical Theory*: Critical theory is a social theory oriented toward critiquing and changing society as a whole, in contrast to traditional theory oriented only to understanding or explaining it. Horkheimer wanted to distinguish critical theory as a radical, emancipatory form of Marxian theory, critiquing both the model of science put forward by logical positivism and what he and his colleagues saw as the covert positivism and authoritarianism of orthodox Marxism and Communism.

Core concepts are: (1) That critical social theory should be directed at the totality of society in its historical specificity (i.e. how it came to be configured at a specific point in time), and (2) That critical theory should improve understanding of society by integrating all the major social sciences, including geography, economics, sociology, history, political science, anthropology, and psychology.

This version of “critical” theory derives from Kant's (18th-century) and Marx's (19th-century) use of the term “critique”, as in Kant's *Critique of Pure Reason* and Marx's concept that his work *Das Kapital* (*Capital*) forms a “critique of political economy.” For Kant's transcendental idealism, “critique” means examining and establishing the limits of the validity of a faculty, type, or body of knowledge, especially through accounting for the limitations imposed by the fundamental, irreducible concepts in use in that knowledge system.

Kant's notion of critique has been associated with the disestablishment of false, unprovable, or dogmatic philosophical, social, and political beliefs, because Kant's critique of reason involved the critique of dogmatic theological and metaphysical ideas and was intertwined with the enhancement of ethical autonomy and the Enlightenment critique of superstition and irrational authority. Ignored by many in “critical realist” circles, however, is that Kant's immediate impetus for writing his “Critique of Pure Reason” was to address problems raised by David Hume's skeptical empiricism which, in attacking metaphysics, employed reason and logic to argue against the knowability of the world and common notions of causation. Kant, by contrast, pushed the employment of a priori metaphysical claims as requisite, for if anything is to be said to be knowable, it would have to be established upon abstractions distinct from perceivable phenomena.

Marx explicitly developed the notion of critique into the critique of ideology and linked it with the practice of social revolution, as stated in the famous 11th of his *Theses on Feuerbach*, “The philosophers have only interpreted the world, in various ways; the point is to change it.” * [6]

One of the distinguishing characteristics of critical theory, as Adorno and Horkheimer elaborated in their *Dialectic of Enlightenment* (1947), is a certain ambivalence concerning the ultimate source or foundation of social domination, an ambivalence which gave rise to the “pessimism” of the new critical theory over the possibility of human emancipation and freedom. * [7] This ambivalence was rooted, of course, in the historical circumstances in which the work was originally produced, in particular, the rise of National Socialism, state capitalism, and mass culture as entirely new forms of social domination that could not be adequately explained within the terms of traditional Marxist sociology. * [8]

For Adorno and Horkheimer, state intervention in economy had effectively abolished the tension between the “relations of production” and “material productive forces of society,” a tension which, according to traditional critical theory, constituted the primary contradiction within capitalism. The market (as an “unconscious” mechanism for the distribution of goods) and private property had been replaced by centralized planning and socialized ownership of the means of production. * [9]

Yet, contrary to Marx' s famous prediction in the *Preface to a Contribution to the Critique of Political Economy*, this shift did not lead to “an era of social revolution,” but rather to fascism and totalitarianism. As such, critical theory was left, in Jürgen Habermas' words, without “anything in reserve to which it might appeal; and when the forces of production enter into a baneful symbiosis with the relations of production that they were supposed to blow wide open, there is no longer any dynamism upon which critique could base its hope.” * [10] For Adorno and Horkheimer, this posed the problem of how to account for the apparent persistence of domination in the absence of the very contradiction that, according to traditional critical theory, was the source of domination itself.

In the 1960s, Jürgen Habermas raised the epistemological discussion to a new level in his *Knowledge and Human Interests*, by identifying critical knowledge as based on principles that differentiated it either from the natural sciences or the humanities, through its orientation to self-reflection and emancipation. Though unsatisfied with Adorno and Horkheimer's thought presented in *Dialectic of Enlightenment*, Habermas shares the view that, in the form of instrumental rationality, the era of modernity marks a move away from the liberation of enlightenment and toward a new form of enslavement.*[11]

His ideas regarding the relationship between modernity and rationalization are in this sense strongly influenced by Max Weber. Habermas dissolved further the elements of critical theory derived from Hegelian German Idealism, though his thought remains broadly Marxist in its epistemological approach. Perhaps his two most influential ideas are the concepts of the public sphere and communicative action; the latter arriving partly as a reaction to new post-structural or so-called "post-modern" challenges to the discourse of modernity. Habermas engaged in regular correspondence with Richard Rorty and a strong sense of philosophical pragmatism may be felt in his theory; thought which frequently traverses the boundaries between sociology and philosophy.

17.2.1 Postmodern critical theory

While modernist critical theory (as described above) concerns itself with "forms of authority and injustice that accompanied the evolution of industrial and corporate capitalism as a political-economic system," postmodern critical theory politicizes social problems "by situating them in historical and cultural contexts, to implicate themselves in the process of collecting and analyzing data, and to relativize their findings".*[12] Meaning itself is seen as unstable due to the rapid transformation in social structures. As a result, the focus of research is centered on local manifestations, rather than broad generalizations.

Postmodern critical research is also characterized by the *crisis of representation*, which rejects the idea that a researcher's work is an "objective depiction of a stable other." Instead, many postmodern scholars have adopted "alternatives that encourage reflection about the 'politics and poetics' of their work. In these accounts, the embodied, collaborative, dialogic, and improvisational aspects of qualitative research are clarified".*[13]

The term "critical theory" is often appropriated when an author (perhaps most notably Michel Foucault) works within sociological terms, yet attacks the social or human sciences (thus attempting to remain "outside" those frames of inquiry).

Jean Baudrillard has also been described as a critical theorist to the extent that he was an unconventional and critical sociologist; this appropriation is similarly casual, holding little or no relation to the Frankfurt School.

17.3 Language and construction

The two points at which there is the greatest overlap or mutual impingement of the two versions of critical theory are in their interrelated foci on language, symbolism, and communication and in their focus on social construction.

17.3.1 Language and communication

From the 1960s and 1970s onward, language, symbolism, text, and meaning came to be seen as the theoretical foundation for the humanities, through the influence of Ludwig Wittgenstein, Ferdinand de Saussure, George Herbert Mead, Noam Chomsky, Hans-Georg Gadamer, Roland Barthes, Jacques Derrida and other thinkers in linguistic and analytic philosophy, structural linguistics, symbolic interactionism, hermeneutics, semiology, linguistically oriented psychoanalysis (Jacques Lacan, Alfred Lorenzer), and deconstruction.

When, in the 1970s and 1980s, Jürgen Habermas redefined critical social theory as a theory of communication, i.e. communicative competence and communicative rationality on the one hand, distorted communication on the other, the two versions of critical theory began to overlap to a much greater degree than before.

17.3.2 Construction

Both versions of critical theory have focused on the processes by which human communication, culture, and political consciousness are created. This includes:

- Whether it is through universal pragmatic principles through which mutual understanding is achieved (**Habermas**).
- The **semiotic** rules by which objects obtain symbolic meanings (**Barthes**).
- The psychological processes by which the phenomena of everyday consciousness are generated (**psychoanalytic** thinkers).
- The *episteme* that underlies our cognitive formations (**Foucault**),

There is a common interest in the processes (often of a linguistic or symbolic kind) that give rise to observable phenomena and here there is some mutual influence among the different versions of critical theory. Ultimately, this emphasis on production and construction goes back to the revolution in philosophy wrought by **Kant**, namely his focus in the *Critique of Pure Reason* on synthesis according to rules as the fundamental activity of the mind that creates the order of our experience.

17.4 21st Century

Since 2010 the **Birkbeck Institute for the Humanities** has organized annually the *London Critical Theory Summer School*; announced participants for the 2015 event include Etienne **Balibar**, Wendy Brown, David Harvey, Jacqueline Rose and Slavoj **Žižek**.^{*} [14]

17.5 See also

Main article: Outline of critical theory

17.5.1 Lists

- Information criticism
- List of major critical theorists
- List of works in critical theory

17.5.2 Related subjects

- American Studies in Britain
- Black feminism
- Comparative Literature
- Continental philosophy
- Critical ethnography
- Critical legal studies
- Critical management studies
- Critical pedagogy
- Critical philosophy
- Critical psychiatry
- Critical psychology
- Critical race theory

- Critical thinking
- Critique of technology
- Cultural Marxism
- Cultural materialism (cultural studies)
- Cultural studies
- Culture theory
- Engaged theory
- Feminist theory
- Foucault–Habermas debate
- Hermeneutics
- Living educational theory
- Humanist Marxism
- Literary theory
- Political philosophy
- Political radicalism
- Rule according to higher law
- Semiotics of culture
- Social criticism
- Tartu-Moscow Semiotics School

17.5.3 Journals related and/or dedicated to critical theory or critical sociology

- Constellations
- Representations
- Critical Inquiry
- Telos
- Law & Critique

17.6 Footnotes

- [1] (Horkheimer 1982, 244)
- [2] [Geuss, R. *The Idea of a Critical Theory*, Cambridge, Cambridge University Press]
- [3] Outhwaite, William. 1988. *Habermas: Key Contemporary Thinkers* 2nd Edition (2009), pp. 5-8 (ISBN 978-0-7456-4328-1)
- [4] See, e.g., Leszek Kołakowski's *Main Currents of Marxism* (1979), vol. 3 chapter X; W. W. Norton & Company, ISBN 0393329437
- [5] Jay, Martin (1996) *The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research, 1923–1950*. University of California Press, ISBN 978-0-520-20423-2, p. 41
- [6] “Theses on Feuerbach” . §XI. Marxists Internet Archive. Retrieved 11 April 2015.

- [7] Adorno, T. W., with Max Horkheimer. *Dialectic of Enlightenment*. Trans. Edmund Jephcott. Stanford: Stanford UP, 2002. 242.
- [8] "Critical Theory was initially developed in Horkheimer's circle to think through political disappointments at the absence of revolution in the West, the development of Stalinism in Soviet Russia, and the victory of fascism in Germany. It was supposed to explain mistaken Marxist prognoses, but without breaking Marxist intentions." "The Entwinement of Myth and Enlightenment: Horkheimer and Adorno." in Habermas, Jürgen. *The Philosophical Discourse of Modernity: Twelve Lectures*. trans. Frederick Lawrence. Cambridge, MA: MIT Press, 1987. 116. Also, see Helmut Dubiel, *Theory and Politics: Studies in the Development of Critical Theory*, trans. Benjamin Gregg (Cambridge, Mass. and London, 1985).
- [9] "[G]one are the objective laws of the market which ruled in the actions of the entrepreneurs and tended toward catastrophe. Instead the conscious decision of the managing directors executes as results (which are more obligatory than the blindest price-mechanisms) the old law of value and hence the destiny of capitalism." *Dialectic of Enlightenment*. p. 38.
- [10] "The Entwinement of Myth and Enlightenment," p. 118.
- [11] Outhwaite, William. 1988. *Habermas: Key Contemporary Thinkers* 2nd Edition (2009). p6. ISBN 978-0-7456-4328-1
- [12] Lindlof & Taylor, 2002, p. 52
- [13] Lindlof & Taylor, 2002, p. 53
- [14] <http://www.bbk.ac.uk/bih/lcts>

17.7 References

- An accessible primer for the literary aspect of critical theory is Jonathan Culler's *Literary Theory: A Very Short Introduction* ISBN 0-19-285383-X
- Another short introductory volume with illustrations: "Introducing Critical Theory" Stuart Sim & Borin Van Loon, 2001. ISBN 1-84046-264-7
- A survey of and introduction to the current state of critical social theory is Craig Calhoun's *Critical Social Theory: Culture, History, and the Challenge of Difference* (Blackwell, 1995) ISBN 1-55786-288-5
- *Problematizing Global Knowledge. Theory, Culture & Society*. Vol. 23 (2–3). (Sage, 2006) ISSN 0263-2764
- Raymond Geuss *The Idea of a Critical Theory. Habermas and the Frankfurt School*. (Cambridge University Press, 1981) ISBN 0-521-28422-8
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- Thomas, Jim (1993). *Doing Critical Ethnography*. London, New York (NY): Sage 1993, pp. 1–5 & 17–25
- An example of critical qualitative research is Tracy, S. J. (2000). Becoming a character for commerce: Emotion labor, self subordination and discursive construction of identity in a total institution. *Management Communication Quarterly*, 14, 90–128.
- Luca Corchia, *La logica dei processi culturali. Jürgen Habermas tra filosofia e sociologia*, Genova, Edizioni ECIG, 2010, ISBN 978-88-7544-195-1.

17.8 External links

17.8.1 Archival collections

- [Guide to the Critical Theory Offprint Collection](#). Special Collections and Archives, The UC Irvine Libraries, Irvine, California.
- [Guide to the Critical Theory Institute Audio and Video Recordings](#), University of California, Irvine. Special Collections and Archives, The UC Irvine Libraries, Irvine, California.
- [University of California, Irvine, Critical Theory Institute Manuscript Materials](#). Special Collections and Archives, The UC Irvine Libraries, Irvine, California.

17.8.2 Other

- [Critical Theory](#), Stanford Encyclopedia of Philosophy
- [The Frankfurt School and Critical Theory](#) entry in the *Internet Encyclopedia of Philosophy*
- [“Theory: Death Is Not the End”](#) N+1 magazine's short history of academic critical theory.
- [Critical Legal Thinking](#) A Critical Legal Studies website which uses critical theory in an analysis of law and politics.
- L. Corchia, *Jürgen Habermas. A Bibliography: works and studies (1952-2013)*, Pisa, Edizioni Il Campano – Arnus University Books, 2013, 606 pages.

Chapter 18

Deception

For other uses of “deception” and “deceit,” see [Deception \(disambiguation\)](#) and [Deceit \(disambiguation\)](#). For other uses of “mystification” and “mystify,” see [Mystify \(disambiguation\)](#).

“Beguiled” redirects here. For the 1971 film, see [The Beguiled](#).

Deception, beguilement, deceit, bluff, mystification and subterfuge are acts to propagate beliefs of things that are not **true**, or not the whole truth (as in **half-truths** or **omission**). Deception can involve **dissimulation, propaganda, and sleight of hand**, as well as distraction, camouflage, or concealment. There is also **self-deception**, as in **bad faith**.

Deception is a major **relational transgression** that often leads to feelings of **betrayal** and distrust between relational partners. Deception violates relational **rules** and is considered to be a negative **violation** of expectations. Most people expect friends, relational partners, and even strangers to be truthful most of the time. If people expected most conversations to be untruthful, talking and communicating with others would require distraction and misdirection to acquire reliable information. A significant amount of deception occurs between **romantic** and relational partners.*^[1]

Deceit and dishonesty can also form grounds for civil litigation in **tort**, or **contract law** (where it is known as **misrepresentation** or **fraudulent misrepresentation** if deliberate), or give rise to criminal prosecution for **fraud**.

18.1 Types

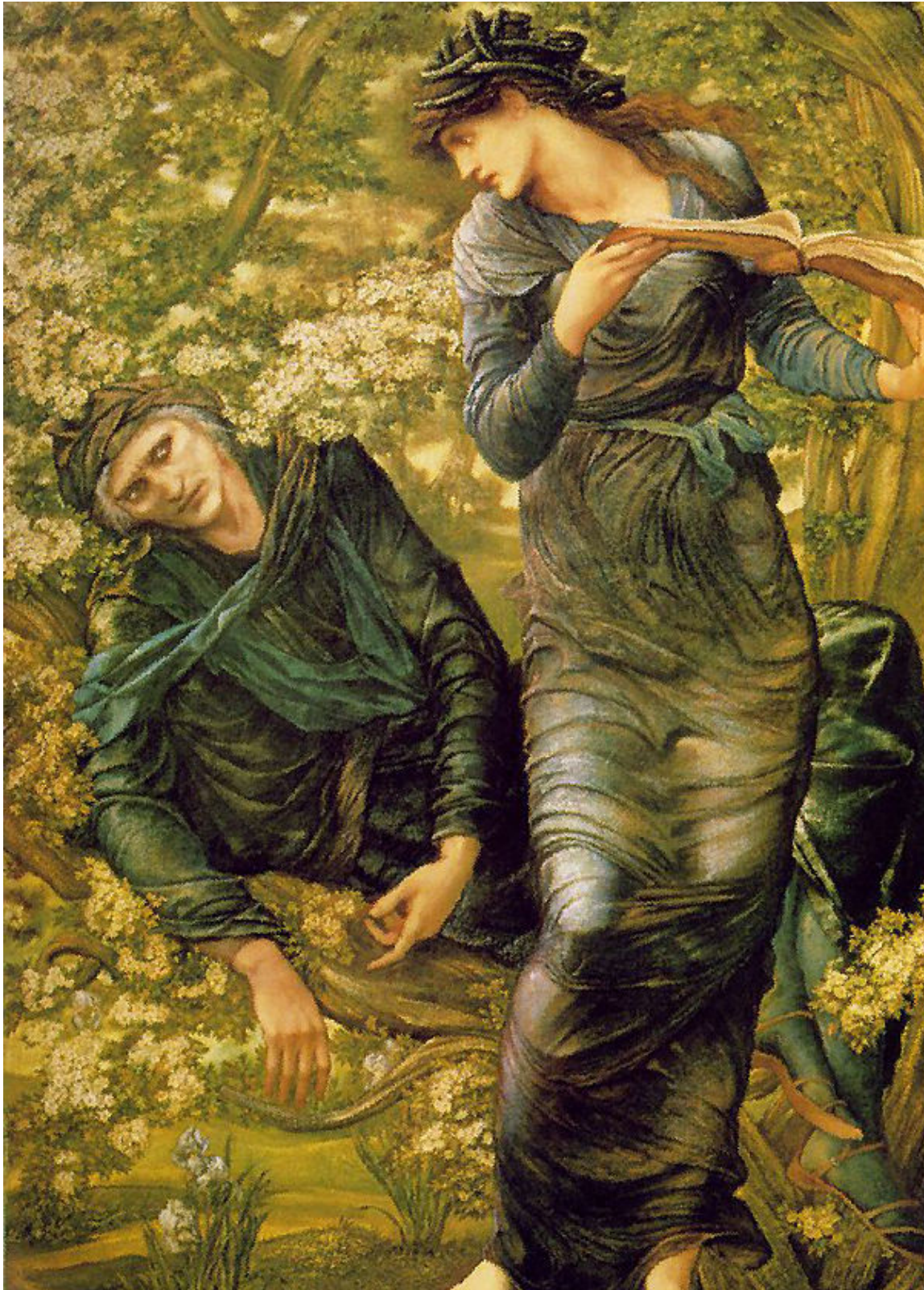
Deception includes several types of communications or omissions that serve to distort or omit the complete truth. Deception itself is intentionally managing verbal and/or nonverbal messages so that the message receiver will believe in a way that the message sender knows is false. Intent is critical with regard to deception. Intent differentiates between deception and an honest mistake. The **Interpersonal Deception Theory** explores the interrelation between communicative context and sender and receiver cognitions and behaviors in deceptive exchanges.

The five primary forms of deception are:

1. **Lies**: making up information or giving information that is the opposite or very different from the truth.*^[2]
2. **Equivocations**: making an indirect, ambiguous, or contradictory statement.
3. **Concealments**: omitting information that is important or relevant to the given context, or engaging in behavior that helps hide relevant information.
4. **Exaggerations**: overstatement or stretching the truth to a degree.
5. **Understatements**: minimization or downplaying aspects of the truth.*^[1]

18.2 Motives

There are three primary motivations for deceptions in close relationships.



The Beguiling of Merlin, by Edward Burne-Jones, 1874

- **Partner-focused motives:** using deception to avoid hurting the partner, to help the partner to enhance or maintain his/her **self-esteem**, to avoid worrying the partner, and to protect the partner's relationship with a third party. Partner-motivated deception can sometimes be viewed as socially polite and relationally beneficial.
- **Self-focused motives:** using deception to enhance or protect their **self-image**, wanting to shield themselves



Deception of woman, with self-portrait by Stanisław Ignacy Witkiewicz, 1927 (National Museum, Warsaw).

from anger, embarrassment, or criticism. Self-focused deception is generally perceived as a more serious transgression than partner-focused deception because the deceiver is acting for selfish reasons rather than for the good of the relationship.

- **Relationship-focused motives:** using deception to limit relationship harm by avoiding conflict or relational trauma. Relationally motivated deception can be beneficial to a relationship, and other times it can be harmful by further complicating matters.*[1]

Alternatively, Buller and Burgoon (1996) have proposed three taxonomies to distinguish motivations for deception based on their Interpersonal Deception Theory:

- Instrumental: to avoid punishment or to protect resources
- Relational: to maintain relationships or bonds
- Identity: to preserve “face” or the self-image *[3]

18.3 Detection

Deception detection between relational partners is extremely difficult, unless a partner tells a blatant or obvious lie or contradicts something the other partner knows to be true. While it is difficult to deceive a partner over a long period of time, deception often occurs in day-to-day conversations between relational partners.*[1] Detecting deception is difficult because there are no known completely reliable indicators of deception. Deception, however, places a significant cognitive load on the deceiver. He or she must recall previous statements so that his or her story remains consistent and believable. As a result, deceivers often leak important information both verbally and nonverbally.

Deception and its detection is a complex, fluid, and cognitive process that is based on the context of the message exchange. The **Interpersonal Deception Theory** posits that interpersonal deception is a dynamic, iterative process of mutual influence between a sender, who manipulates information to depart from the truth, and a receiver, who attempts to establish the validity of the message.*[4] A deceiver's actions are interrelated to the message receiver's actions. It is during this exchange that the deceiver will reveal verbal and nonverbal information about deceit.*[5] Some research has found that there are some cues that may be correlated with deceptive communication, but scholars

frequently disagree about the effectiveness of many of these cues to serve as reliable indicators. Noted deception scholar Aldert Vrij even states that there is no nonverbal behavior that is uniquely associated with deception.*[6] As previously stated, a specific behavioral indicator of deception does not exist. There are, however, some nonverbal behaviors that have been found to be correlated with deception. Vrij found that examining a “cluster” of these cues was a significantly more reliable indicator of deception than examining a single cue.*[6]

Mark Frank proposes that deception is detected at the cognitive level.*[7] Lying requires deliberate conscious behavior, so listening to speech and watching body language are important factors in detecting lies. If a response to a question has a lot of disturbances, less talking time, repeated words, and poor logical structure, then the person may be lying.

Fear specifically causes heightened arousal in liars, which manifests in more frequent blinking, pupil dilation, speech disturbances, and a higher pitched voice. The liars that experience guilt have been shown to make attempts at putting distance between themselves and the deceptive communication, producing “nonimmediacy cues” These can be verbal or physical, including speaking in more indirect ways and showing an inability to maintain eye contact with their conversation partners.*[8] Another cue for detecting deceptive speech is the tone of the speech itself. Streeter, Krauss, Geller, Olson, and Apple (1977) have assessed that fear and anger, two emotions widely associated with deception, cause greater arousal than grief or indifference, and note that the amount of stress one feels is directly related to the frequency of the voice.*[9]

18.4 Camouflage

Main article: [Camouflage](#)

The **camouflage** of a physical object often works by breaking up the visual boundary of that object. This usually involves colouring the camouflaged object with the same colours as the background against which the object will be hidden. In the realm of deceptive **half-truths**, camouflage is realized by 'hiding' some of the truths.

Military camouflage as a form of visual deception is a part of **military deception**.

18.5 Disguise

Main article: [Disguise](#)

A disguise is an appearance to create the impression of being somebody or something else; for a well-known person this is also called **incognito**. **Passing** involves more than mere dress and can include hiding one's real manner of speech.

Example:

- The fictional **Sherlock Holmes** often disguised himself as somebody else to avoid being recognized.

In a more abstract sense, 'disguise' may refer to the act of disguising the nature of a particular proposal in order to hide an unpopular motivation or effect associated with that proposal. This is a form of political **spin** or **propaganda**. *See also:* **rationalisation** and **transfer** within the techniques of propaganda generation.

Example:

- Depicting an act of war as a “peace” mission.

18.5.1 Dazzle

Example:

- The defensive mechanisms of most **octopuses** to eject black **ink** in a large cloud to aid in escape from predators.
- The use by some Allied navies during **World War II** of **Dazzle camouflage** painting schemes to confuse observers regarding a naval vessel's speed and heading.



This wallaby has adaptive colouration which allows it to blend with its environment.

18.6 Simulation

Simulation consists of exhibiting false information. There are three simulation techniques: *mimicry* (copying another model), *fabrication* (making up a new model), and *distraction* (offering an alternative model)

18.6.1 Mimicry

In the biological world, mimicry involves *unconscious* deception by similarity to another organism, or to a natural object. Animals for example may deceive predators or prey by *visual*, *auditory* or other means.

18.6.2 Fabrication

To make something that in reality is not what it appears to be. For example, in *World War II*, it was common for the *Allies* to use hollow tanks made out of cardboard to fool German *reconnaissance* planes into thinking a large armor unit was on the move in one area while the real tanks were well hidden and on the move in a location far from the fabricated “dummy” tanks.

18.6.3 Distraction

To get someone's attention from the truth by offering *bait* or something else more tempting to divert attention away from the object being concealed. For example, a security company publicly announces that it will ship a large gold shipment down one route, while in reality take a different route.

18.7 In social research

Some methodologies in social research, especially in *psychology* involve deception. The researchers purposely mislead or misinform the participants about the true nature of the experiment.

In an experiment conducted by *Stanley Milgram* in 1963 the researchers told participants that they would be participating in a scientific study of memory and learning. In reality the study looked at the participants' willingness to obey commands, even when that involved inflicting pain upon another person. After the study, the subjects were informed of the true nature of the study, and steps were taken in order to ensure that the subjects left in a state of well being.* [10]

Use of deception raises many problems of *research ethics* and it is strictly regulated by professional bodies such as the *American Psychological Association*.

18.8 In psychological research

Psychological research often needs to deceive the subjects as to its actual purpose. The rationale for such deception is that humans are sensitive to how they appear to others (and to themselves) and this self-consciousness might interfere with or distort from how they actually behave outside of a research context (where they would not feel they were being scrutinized). For example, if a psychologist is interested in learning the conditions under which students cheat on tests, directly asking them, “how often do you cheat?,” might result in a high percent of “socially desirable” answers and the researcher would in any case be unable to verify the accuracy of these responses. In general, then, when it is unfeasible or naive to simply ask people directly why or how often they do what they do, researchers turn to the use of deception to distract their participants from the true behavior of interest. So, for example, in a study of cheating, the participants may be told that the study has to do with how intuitive they are. During the process they might be given the opportunity to look at (secretly, they think) another participant's [presumably highly intuitively correct] answers before handing in their own. At the conclusion of this or any research involving deception, all participants must be told of the true nature of the study and why deception was necessary (this is called *debriefing*). Moreover, it is customary to offer to provide a summary of the results to all participants at the conclusion of the research.

Though commonly used and allowed by the ethical guidelines of the American Psychological Association, there has been debate about whether or not the use of deception should be permitted in psychological research **experiments**.

Those against deception object to the ethical and methodological issues involved in its use. Dresser (1981) notes that, ethically, researchers are only to use subjects in an experiment after the subject has given informed consent. However, because of its very nature, a researcher conducting a deception experiment cannot reveal its true purpose to the subject, thereby making any consent given by a subject misinformed (p. 3). **Baumrind** (1964), criticizing the use of deception in the **Milgram (1963) obedience experiment**, argues that deception experiments inappropriately take advantage of the implicit trust and obedience given by the subject when the subject volunteers to participate (p. 421).

From a practical perspective, there are also methodological objections to deception. Ortmann and Hertwig (1998) note that “deception can strongly affect the reputation of individual labs and the profession, thus contaminating the participant pool” (p. 806). If the subjects in the experiment are suspicious of the researcher, they are unlikely to behave as they normally would, and the researcher's control of the experiment is then compromised (p. 807).

Those who do not object to the use of deception note that there is always a constant struggle in balancing “the need for conducting research that may solve social problems and the necessity for preserving the dignity and rights of the research participant” (Christensen, 1988, p. 670). They also note that, in some cases, using deception is the only way to obtain certain kinds of information, and that prohibiting all deception in research would “have the egregious consequence of preventing researchers from carrying out a wide range of important studies” (Kimmel, 1998, p. 805).

Additionally, findings suggest that deception is not harmful to subjects. Christensen's (1988) review of the literature found “that research participants do not perceive that they are harmed and do not seem to mind being misled” (p. 668). Furthermore, those participating in experiments involving deception “reported having enjoyed the experience more and perceived more educational benefit” than those who participated in non-deceptive experiments (p. 668).

Lastly, it has also been suggested that an unpleasant treatment used in a deception study or the unpleasant implications of the outcome of a deception study may be the underlying reason that a study using deception is perceived as unethical in nature, rather than the actual deception itself (Broder, 1998, p. 806; Christensen, 1988, p. 671).

18.9 In philosophy

Deception is a recurring theme in modern philosophy. In 1641 Descartes published his **meditations**, in which he introduced the notion of the **Deus deceptor**, a posited being capable of deceiving the thinking **ego** about **reality**. The notion was used as part of his **hyperbolic doubt**, wherein one decides to doubt everything there is to doubt. The Deus deceptor is a mainstay of so-called **skeptical** arguments, which purport to put into question our knowledge of reality. The punch of the argument is that all we know might be wrong, since we might be deceived. **Stanley Cavell** has argued that all skepticism has its root in this fear of deception.

18.10 In law

Main article: **Tort of deceit**

For legal purposes, **deceit** is a **tort** that occurs when a person makes a factual misrepresentation, knowing that it is false (or having no belief in its truth and being reckless as to whether it is true) and intending it to be relied on by the recipient, and the recipient acts to his or her detriment in reliance on it. Deceit may also be grounds for legal action in contract law (known as **misrepresentation**, or if deliberate, **fraudulent misrepresentation**), or a criminal prosecution, on the basis of **fraud**.

18.11 See also

- **Academic dishonesty**
- **Battleplan** (documentary TV series)
- **Communications deception**
- **Crowd manipulation**

- Deception (criminal law)
- Deception in animals
- Electronic deception
- Forgery
- Fraud
- Hoax
- Limited hangout
- Media transparency
- Mental reservation
- Misdirection (disambiguation)
- Outline of public relations
- Phishing
- Placebo
- Plagiarism
- Psychological warfare
- Secrecy
- Simulated reality
- Socioemotional selectivity theory
- Spectacle
- Steganography
- Sting operation
- Swampland in Florida

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Chapter 19

Definite description

A **definite description** is a **denoting phrase** in the form of “the X” where X is a noun-phrase or a singular common noun. The definite description is *proper* if X applies to a unique individual or object. For example: “the first person in space” and “the 42nd President of the United States of America”, are proper. The definite descriptions “the person in space” and “the Senator from Ohio” are *improper* because the noun phrase X applies to more than one thing, and the definite descriptions “the first man on Mars” and “the Senator from Washington D.C.” are *improper* because X applies to nothing. Improper descriptions raise some difficult questions about the **law of excluded middle**, **denotation**, **modality**, and **mental content**.

19.1 Russell's analysis

Main article: [Theory of descriptions](#)

France is currently a **republic**, and has no king. **Bertrand Russell** pointed out that this raises a puzzle about the truth value of the sentence “The present King of France is bald.”

The sentence does not seem to be true: if we consider all the bald things, the present King of France isn't among them, since there is **no present King of France**. But if it is false, then one would expect that the **negation** of this statement, that is, “It is not the case that the present King of France is bald,” or its **logical equivalent**, “The present King of France is not bald,” is true. But this sentence doesn't seem to be true either: the present King of France is no more among the things that fail to be bald than among the things that are bald. We therefore seem to have a violation of the **Law of Excluded Middle**.

Is it meaningless, then? One might suppose so (and some philosophers have; see below) since “the present King of France” certainly does **fail to refer**. But on the other hand, the sentence “The present King of France is bald” (as well as its negation) seem perfectly intelligible, suggesting that “the Present King of France” can't be meaningless.

Russell proposed to resolve this puzzle via his **theory of descriptions**. A definite description like “the present King of France”, he suggested, isn't a **referring expression**, as we might naively suppose, but rather an “incomplete symbol” that introduces **quantificational** structure into sentences in which it occurs. The sentence “the present King of France is bald”, for example, is analyzed as a conjunction of the following three **quantified** statements:

1. there is an x such that x is currently King of France: $\exists x[\text{PKoF}(x)]$ (using 'PKoF' for 'currently King of France')
2. for any x and y, if x is currently King of France and y is currently King of France, then $x=y$ (i.e. there is at most one thing which is currently King of France): $\forall x\forall y[(\text{PKoF}(x) \ \& \ \text{PKoF}(y)) \rightarrow y=x]$
3. for every x that is currently King of France, x is bald: $\forall x[\text{PKoF}(x) \rightarrow B(x)]$ (using 'B' for 'bald')

More briefly put, the claim is that “The present King of France is bald” says that some x is such that x is currently King of France, and that any y is currently King of France only if $y = x$, and that x is bald:

$$\exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$$

This is *false*, since it is *not* the case that some x is currently King of France.

The negation of this sentence, i.e. “The present King of France is not bald”, is ambiguous. It could mean one of two things, depending on where we place the negation ‘not’. On one reading, it could mean that there is no one who is currently King of France and bald:

$$\sim \exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$$

On this disambiguation, the sentence is *true* (since there is indeed no x that is currently King of France).

On a second reading, the negation could be construed as attaching directly to ‘bald’, so that the sentence means that there is currently a King of France, but that this King fails to be bald:

$$\exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ \sim B(x)]$$

On this disambiguation, the sentence is *false* (since there is no x that is currently King of France).

Thus, whether “the present King of France is not bald” is true or false depends on how it is interpreted at the level of **logical form**: if the **negation** is construed as taking wide scope (as in $\sim \exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$), it is true, whereas if the negation is construed as taking narrow scope (with the **existential quantifier** taking wide scope, as in $\exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ \sim B(x)]$), it is false. In neither case does it lack a truth value.

So we do *not* have a failure of the **Law of Excluded Middle**: “the present King of France is bald” (i.e. $\exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$) is false, because there is no present King of France. The negation of this statement is the one in which ‘not’ takes wide scope: $\sim \exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$. This statement is *true* because there does not exist anything which is currently King of France.

19.2 Generalized quantifier analysis

Stephen Neale, among others, has defended Russell’s theory, and incorporated it into the theory of **generalized quantifiers**. On this view, ‘the’ is a quantificational determiner like ‘some’, ‘every’, ‘most’ etc. The definite description ‘the’ has the following denotation (using **lambda** notation):

$$\lambda f.\lambda g.[\exists x(f(x)=1 \ \& \ \forall y(f(y)=1 \rightarrow y=x) \ \& \ g(x)=1)].$$

(That is, the definite article ‘the’ denotes a function which takes a pair of **properties** f and g to truth if, and only if there exists something that has the property f , only one thing has the property f , and that thing also has the property g .) Given the denotation of the **predicates** ‘present King of France’ (again PKoF for short) and ‘bald’ (B for short)

$$\lambda x.[\text{PKoF}(x)]$$

$$\lambda x.[B(x)]$$

we then get the Russellian truth conditions via two steps of **function application**: ‘The present King of France is bald’ is true if, and only if $\exists x[\text{PKoF}(x) \ \& \ \forall y[\text{PKoF}(y) \rightarrow y=x] \ \& \ B(x)]$. On this view, definite descriptions like ‘the present King of France’ do have a denotation (specifically, definite descriptions denote a function from properties to truth values—they are in that sense not **syncategorematic**, or “incomplete symbols”); but the view retains the essentials of the Russellian analysis, yielding exactly the truth conditions Russell argued for.

19.3 Fregean analysis

The Fregean analysis of definite descriptions, implicit in the work of **Frege** and later defended by **Strawson** (1950) among others, represents the primary alternative to the Russellian theory. On the Fregean analysis, definite descriptions are construed as **referring expressions** rather than **quantificational expressions**. Existence and uniqueness are understood as a **presupposition** of a sentence containing a definite description, rather than part of the content asserted by such a sentence. The sentence ‘The present King of France is bald’, for example, isn’t used to claim that there exists a unique present King of France who is bald; instead, that there is a unique present King of France is part of

what this sentence *presupposes*, and what it *says* is that this individual is bald. If the presupposition fails, the definite description *fails to refer*, and the sentence as a whole fails to express a *proposition*.

The Fregean view is thus committed to the kind of *truth value gaps* (and failures of the *Law of Excluded Middle*) that the Russellian analysis is designed to avoid. Since there is currently no King of France, the sentence 'The present King of France is bald' fails to express a proposition, and therefore fails to have a truth value, as does its *negation*, 'The present King of France is not bald'. The Fregean will account for the fact that these sentences are nevertheless *meaningful* by relying on speakers' knowledge of the conditions under which either of these sentences *could* be used to express a true proposition. The Fregean can also hold on to a restricted version of the Law of Excluded Middle: for any sentence whose presuppositions are met (and thus expresses a proposition), either that sentence or its negation is true.

On the Fregean view, the definite article 'the' has the following denotation (using *lambda* notation):

$$\lambda f: \exists x(f(x)=1 \ \& \ \forall y(f(y)=1 \rightarrow y=x)).[\text{the unique } y \text{ such that } f(y)=1]$$

(That is, 'the' denotes a function which takes a property f and yields the unique object y that has property f , if there is such a y , and is undefined otherwise.) The presuppositional character of the existence and uniqueness conditions is here reflected in the fact that the definite article denotes a *partial function* on the set of properties: it is only defined for those properties f which are true of exactly one object. It is thus undefined on the denotation of the predicate 'currently King of France', since the property of currently being King of France is true of no object; it is similarly undefined on the denotation of the predicate 'Senator of the US', since the property of being a US Senator is true of more than one object.

19.4 Mathematical logic

Main article: *Uniqueness quantification*

In much *formal* work, authors use a definite description operator symbolized using ιx . The operator is usually defined so as to reflect a Russellian analysis of descriptions (though other authors, especially in linguistics, use the ι operator with a Fregean semantics). Thus

$$\iota x(\phi x)$$

means "the unique x such that ϕx ", and

$$\psi(\iota x(\phi x))$$

is stipulated to be equivalent to "There is exactly one ϕ and it has the property ψ ":

$$\exists x \forall y(\phi(y) \iff y = x \wedge \psi(y))$$

19.5 See also

- Philosophy of language
- Analytic philosophy
- Bertrand Russell
- John Searle

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19.7 External links

- [Definite description entry in the *Stanford Encyclopedia of Philosophy*](#)

Chapter 20

Dialectic

For other uses, see [Dialect](#) (disambiguation).

Dialectic (also **dialectics** and **the dialectical method**), from Ancient Greek διαλεκτική, is a method of argument for resolving **disagreement** that has been central to European and Indian philosophy since antiquity. The word *dialectic* originated in **ancient Greece**, and was made popular by **Plato** in the **Socratic dialogues**. The dialectical method is **discourse** between two or more people holding different **points of view** about a subject, who wish to establish the truth of the matter guided by **reasoned** arguments.*[1]

The term dialectics is not synonymous with the term **debate**. While in theory debaters are not necessarily emotionally invested in their point of view, in practice debaters frequently display an emotional commitment that may cloud rational judgement. Debates are won through a combination of persuading the opponent; proving one's argument correct; or proving the opponent's argument incorrect. Debates do not necessarily require promptly identifying a clear winner or loser; however clear winners are frequently determined by either a **judge**, **jury**, or by **group consensus**. The term dialectics is also not synonymous with the term **rhetoric**, a method or art of discourse that seeks to persuade, inform, or motivate an audience.*[2] Concepts, like "*logos*" or rational appeal, "*pathos*" or emotional appeal, and "*ethos*" or ethical appeal, are intentionally used by rhetoricians to persuade an audience.*[3]

The **Sophists** taught *aretē* (Greek: ἀρετή, *quality*, *excellence*) as the highest value, and the determinant of one's actions in life. The Sophists taught artistic quality in oratory (motivation via speech) as a manner of demonstrating one's *aretē*. Oratory was taught as an art form, used to please and to influence other people via excellent speech; nonetheless, the Sophists taught the pupil to seek *aretē* in all endeavours, not solely in oratory.

Socrates favoured *truth* as the highest value, proposing that it could be discovered through reason and logic in discussion: ergo, *dialectic*. Socrates valued **rationality** (appealing to logic, not emotion) as the proper means for persuasion, the discovery of truth, and the determinant for one's actions. To Socrates, *truth*, not *aretē*, was the greater good, and each person should, above all else, seek truth to guide one's life. Therefore, Socrates opposed the Sophists and their teaching of rhetoric as art and as emotional oratory requiring neither logic nor proof.*[4] Different forms of dialectical reasoning have emerged throughout history from the **Indosphere** (Greater India) and the **West** (Europe). These forms include the **Socratic method**, **Hindu**, **Buddhist**, **Medieval**, **Hegelian dialectics**, **Marxist**, **Talmudic**, and **Neo-orthodoxy**.

20.1 Principles

The purpose of the dialectic method of reasoning is resolution of **disagreement** through **rational** discussion, and, ultimately, the search for truth.*[5]*[6] One way to proceed—the **Socratic method**—is to show that a given **hypothesis** (with other admissions) leads to a **contradiction**; thus, forcing the withdrawal of the hypothesis as a candidate for **truth** (see **reductio ad absurdum**). Another dialectical resolution of disagreement is by denying a **presupposition** of the contending thesis and antithesis; thereby, proceeding to *sublation* (transcendence) to *synthesis*, a third thesis.

It is also possible that the rejection of the participants' presuppositions is resisted, which then might generate a second-order controversy.*[7]

Fichtean Dialectics (Hegelian Dialectics) is based upon four concepts:

1. Everything is transient and finite, existing in the medium of time.
2. Everything is composed of contradictions (opposing forces).
3. Gradual changes lead to crises, turning points when one force overcomes its opponent force (quantitative change leads to qualitative change).
4. Change is *helical* (spiral), not circular (negation of the negation).^{*} [8]

The concept of *dialectic* existed in the philosophy of **Heraclitus** of **Ephesus**, who proposed that everything is in constant change, as a result of inner strife and opposition.^{*} [9]^{*} [10]^{*} [11] Hence, the history of the dialectical method is the history of philosophy.^{*} [12]

20.2 Western dialectical forms

20.2.1 Classical philosophy

According to **Kant**, the ancient Greeks used the word “dialectic” to signify the logic of false appearance or semblance. To the ancients, “it was nothing but the logic of illusion. It was a sophistic art of giving to one's ignorance, indeed even to one's intentional tricks, the outward appearance of truth, by imitating the thorough, accurate method which logic always requires, and by using its topic as a cloak for every empty assertion.”^{*} [13]

In *classical philosophy*, dialectic (*Greek*: διαλεκτική) is a form of reasoning based upon dialogue of arguments and counter-arguments, advocating *propositions* (*theses*) and *counter-propositions* (*antitheses*). The outcome of such a dialectic might be the refutation of a relevant proposition, or of a synthesis, or a combination of the opposing assertions, or a qualitative improvement of the dialogue.^{*} [14]^{*} [15]

Moreover, the term “dialectic” owes much of its prestige to its role in the philosophies of **Socrates** and **Plato**, in the Greek **Classical** period (5th to 4th centuries BCE). **Aristotle** said that it was the pre-Socratic philosopher **Zeno** of **Elea** who invented dialectic, of which the dialogues of **Plato** are the examples of the Socratic dialectical method.^{*} [16]

Socratic dialogue

Main article: *Socratic dialogue*

In **Plato's** dialogues and other Socratic dialogues, **Socrates** attempts to examine someone's beliefs, at times even *first principles* or *premises* by which we all reason and argue. **Socrates** typically argues by cross-examining his interlocutor's claims and premises in order to draw out a *contradiction* or inconsistency among them. According to **Plato**, the rational detection of error amounts to finding the proof of the antithesis.^{*} [17] However, important as this objective is, the principal aim of Socratic activity seems to be to improve the soul of his interlocutors, by freeing them from unrecognized errors.

For example, in the *Euthyphro*, **Socrates** asks **Euthyphro** to provide a definition of piety. **Euthyphro** replies that the pious is that which is loved by the gods. But, **Socrates** also has **Euthyphro** agreeing that the gods are quarrelsome and their quarrels, like human quarrels, concern objects of love or hatred. Therefore, **Socrates** reasons, at least one thing exists that certain gods love but other gods hate. Again, **Euthyphro** agrees. **Socrates** concludes that if **Euthyphro's** definition of piety is acceptable, then there must exist at least one thing that is both pious and impious (as it is both loved and hated by the gods)—which **Euthyphro** admits is absurd. Thus, **Euthyphro** is brought to a realization by this dialectical method that his definition of piety is not sufficiently meaningful.

According to the University of Chicago, dialectic can be defined as a, “mode of thought, or a philosophic medium, through which contradiction becomes a starting point (rather than a dead end) for contemplation”^{*} [18] **Socrates** proposed this form of dialectic through a Socratic method termed *elenchus*. To achieve the ultimate truth of opinions, hence dialectic, **Socrates** refuted propositions by proving his own statements true. In common cases, **Socrates** used enthymemes as the foundation of his argument. Discourse was applied to guide his reasoned arguments until the interlocutors had no other choice but to agree with him, conclusively contradicting their original theses. Therefore, **Socrates**, in result, would have reached ultimate truth.

For example, dialectic occurs between **Socrates**, the **Sophist**, **Gorgias**, and two men, **Polus** and **Callicles** in **Plato's** *Gorgias*. Because **Socrates'** ultimate goal was to reach true knowledge, he was even willing to change his own views

in order to arrive at the truth. The fundamental goal of dialectic, in this instance, was to establish a precise definition of the subject (in this case, rhetoric) and with the use of argumentation and questioning, make the subject even more precise. In the *Gorgias*, Socrates reaches the truth by asking a series of questions and in return, receiving short, clear answers.

Socrates asks Gorgias if he who has learned carpentering is a carpenter, and if he who has learned music is a musician, and if he who has learned medicine is a physician, and so forth. Gorgias one way or another replies “yes,” to all of these questions. Socrates then continues by asking Gorgias if he believes that a just man will always desire to do what is just and never intend to do injustice. Yet again, Gorgias replies, “yes.” Socrates then brings up the fact that earlier in their conversation Gorgias stated that rhetoricians are just men. Gorgias agrees. In return, Socrates contradicts Gorgias' statements, because Gorgias had implied that if a rhetorician uses rhetoric for injustices, the teacher should not be at fault. If this were to occur, then a rhetorician would in fact not be a just man. Socrates discovered the inconsistency in Gorgias' statements and ends the excerpt by stating “there will be a great deal of discussion, before we get at the truth of all this.”

This example demonstrates how dialectic is used as a method to maneuver people into contradicting their own theses. Reasoned argumentative discourse furthers the establishment of the truth. Dialectic, dissimilar to debates, naturally comes to an end. The ultimate truth will be arrived at and contradiction diminished.

There is another interpretation of the dialectic, as a method of intuition suggested in *The Republic*.^[19] Simon Blackburn writes that the dialectic in this sense is used to understand “the total process of enlightenment, whereby the philosopher is educated so as to achieve knowledge of the supreme good, the Form of the Good” .^[20]

20.2.2 Medieval philosophy

Dialectics (also called logic) was one of the three liberal arts taught in medieval universities as part of the trivium. The trivium also included rhetoric and grammar.^[21]^[22]^[23]^[24]

Based mainly on Aristotle, the first medieval philosopher to work on dialectics was Boethius.^[25] After him, many scholastic philosophers also made use of dialectics in their works, such as Abelard,^[26] William of Sherwood,^[27] Garlandus Compotista,^[28] Walter Burley, Roger Swyneshed and William of Ockham.^[29]

This dialectic was formed as follows:

1. The Question to be determined
2. The principal objections to the question
3. An argument in favor of the Question, traditionally a single argument (“On the contrary..”)
4. The determination of the Question after weighing the evidence. (“I answer that...”)
5. The replies to each objection

20.2.3 Modern philosophy

The concept of dialectics was given new life by Georg Wilhelm Friedrich Hegel (following Fichte), whose dialectically dynamic model of nature and of history made it, as it were, a fundamental aspect of the nature of reality (instead of regarding the contradictions into which dialectics leads as a sign of the sterility of the dialectical method, as Immanuel Kant tended to do in his *Critique of Pure Reason*).^[30]^[31] In the mid-19th century, the concept of “dialectic” was appropriated by Karl Marx (see, for example, *Das Kapital*, published in 1867) and Friedrich Engels and retooled in what they claimed to be a non-idealist manner. It would also become a crucial part of later representations of Marxism as a philosophy of dialectical materialism. These representations often contrasted dramatically^[32] and led to vigorous debate among different Marxist groupings (leading some prominent Marxists to give up on the idea of dialectics completely)^[33] Thus this concept has played a prominent role on the world stage and in world history. In contemporary polemics, “dialectics” may also refer to an understanding of how we can or should perceive the world (epistemology); an assertion that the nature of the world outside one's perception is interconnected, contradictory, and dynamic (ontology); or it can refer to a method of presentation of ideas and conclusions (discourse). According to Hegel, “dialectic” is the method by which human history unfolds; that is to say, history progresses as a dialectical process.

Hegelian dialectic

Hegelian dialectic, usually presented in a threefold manner, was stated by Heinrich Moritz Chalybäus as comprising three dialectical stages of development: a *thesis*, giving rise to its reaction, an *antithesis*, which contradicts or negates the thesis, and the tension between the two being resolved by means of a *synthesis*. Although this model is often named after Hegel, he himself never used that specific formulation. Hegel ascribed that terminology to Kant.*[34] Carrying on Kant's work, Fichte greatly elaborated on the synthesis model, and popularized it.

On the other hand, Hegel did use a three-valued logical model that is very similar to the antithesis model, but Hegel's most usual terms were: Abstract-Negative-Concrete. Hegel used this writing model as a backbone to accompany his points in many of his works.

The formula, thesis-antithesis-synthesis, does not explain why the thesis requires an antithesis. However, the formula, abstract-negative-concrete, suggests a flaw, or perhaps an incompleteness, in any initial thesis—it is too abstract and lacks the negative of trial, error and experience. For Hegel, the concrete, the synthesis, the absolute, must always pass through the phase of the negative, in the journey to completion, that is, mediation. This is the essence of what is popularly called Hegelian Dialectics.

According to the German philosopher Walter Kaufmann:

“Fichte introduced into German philosophy the three-step of thesis, antithesis, and synthesis, using these three terms. Schelling took up this terminology. *Hegel did not*. He never once used these three terms together to designate three stages in an argument or account in any of his books. And they do not help us understand his *Phenomenology*, his *Logic*, or his philosophy of history; they impede any open-minded comprehension of what he does by forcing it into a scheme which was available to him and which he deliberately spurned...The mechanical formalism...Hegel derides expressly and at some length in the preface to the *Phenomenology*.”*[35]*[36]

Kaufmann also cites Hegel's criticism of the triad model commonly misattributed to him, adding that “the only place where Hegel uses the three terms together occurs in his lectures on the history of philosophy, on the last page but one of the section on Kant – where Hegel roundly reproaches Kant for having 'everywhere posited thesis, antithesis, synthesis'”.*[37]

To describe the activity of overcoming the negative, Hegel also often used the term *Aufhebung*, variously translated into English as “sublation” or “overcoming,” to conceive of the working of the dialectic. Roughly, the term indicates preserving the useful portion of an idea, thing, society, etc., while moving beyond its limitations. (Jacques Derrida's preferred French translation of the term was *relever*.)*[38]

In the *Logic*, for instance, Hegel describes a dialectic of *existence*: first, existence must be posited as pure Being (*Sein*); but pure Being, upon examination, is found to be indistinguishable from Nothing (*Nichts*). When it is realized that what is coming into being is, at the same time, also returning to nothing (in life, for example, one's living is also a dying), both Being and Nothing are united as Becoming.*[39]

As in the Socratic dialectic, Hegel claimed to proceed by making implicit contradictions explicit: each stage of the process is the product of contradictions inherent or implicit in the preceding stage. For Hegel, the whole of history is one tremendous dialectic, major stages of which chart a progression from self-alienation as *slavery* to self-unification and realization as the *rational, constitutional state* of free and equal citizens. The Hegelian dialectic cannot be mechanically applied for any chosen thesis. Critics argue that the selection of any antithesis, other than the logical negation of the thesis, is subjective. Then, if the logical negation is used as the antithesis, there is no rigorous way to derive a synthesis. In practice, when an antithesis is selected to suit the user's subjective purpose, the resulting “contradictions” are *rhetorical*, not logical, and the resulting synthesis is not rigorously defensible against a multitude of other possible syntheses. The problem with the Fichtean “Thesis-Antithesis-Synthesis” model is that it implies that contradictions or negations come from outside of things. Hegel's point is that they are inherent in and internal to things. This conception of dialectics derives ultimately from *Heraclitus*.

Hegel stated that the purpose of dialectics is “to study things in their own being and movement and thus to demonstrate the finitude of the partial categories of understanding.”*[40]

One important dialectical principle for Hegel is the transition from quantity to quality, which he terms the Measure. The measure is the qualitative quantum, the quantum is the existence of quantity.*[41]

“The identity between quantity and quality, which is found in Measure, is at first only implicit, and not yet explicitly realised. In other words, these two categories, which unite in Measure, each claim an

independent authority. On the one hand, the quantitative features of existence may be altered, without affecting its quality. On the other hand, this increase and diminution, immaterial though it be, has its limit, by exceeding which the quality suffers change. [...] But if the quantity present in measure exceeds a certain limit, the quality corresponding to it is also put in abeyance. This however is not a negation of quality altogether, but only of this definite quality, the place of which is at once occupied by another. This process of measure, which appears alternately as a mere change in quantity, and then as a sudden revulsion of quantity into quality, may be envisaged under the figure of a nodal (knotted) line” . * [42]

As an example, Hegel mentions the states of aggregation of water: “Thus the temperature of water is, in the first place, a point of no consequence in respect of its liquidity: still with the increase or diminution of the temperature of the liquid water, there comes a point where this state of cohesion suffers a qualitative change, and the water is converted into steam or ice” . * [43] As other examples Hegel mentions the reaching of a point where a single additional grain makes a heap of wheat; or where the bald-tail is produced, if we continue plucking out single hairs.

Another important principle for Hegel is the negation of the negation, which he also terms *Aufhebung* (sublation): Something is only what it is in its relation to another, but by the negation of the negation this something incorporates the other into itself. The dialectical movement involves two moments that negate each other, something and its other. As a result of the negation of the negation, “something becomes its other; this other is itself something; therefore it likewise becomes an other, and so on ad infinitum” . * [44] Something in its passage into other only joins with itself, it is self-related. * [45] In becoming there are two moments: * [46] coming-to-be and ceasing-to-be: by sublation, i.e., negation of the negation, being passes over into nothing, it ceases to be, but something new shows up, is coming to be. What is sublated (*aufgehoben*) on the one hand ceases to be and is put to an end, but on the other hand it is preserved and maintained. * [47] In dialectics, a totality transforms itself; it is self-related, then self-forgetful, relieving the original tension.

Marxist dialectics

Karl Marx and Friedrich Engels proposed that G.F. Hegel had rendered philosophy too abstractly ideal:

The mystification which dialectic suffers in Hegel's hands, by no means prevents him from being the first to present its general form of working in a comprehensive and conscious manner. With him it is standing on its head. It must be turned right side up again, if you would discover the rational kernel within the mystical shell. * [48]

In contradiction to Hegelian idealism, Karl Marx presented **Dialectical materialism** (Marxist dialectics):

My dialectic method is not only different from the Hegelian, but is its direct opposite. To Hegel, the life-process of the human brain, i.e. the process of thinking, which, under the name of 'the Idea', he even transforms into an independent subject, is the **демиургос** of the real world, and the real world is only the external, phenomenal form of 'the Idea'. With me, on the contrary, the ideal is nothing else than the material world reflected by the human mind, and translated into forms of thought. * [49]

In Marxism, the dialectical method of historical study became intertwined with **historical materialism**, the school of thought exemplified by the works of Marx, Engels, and Vladimir Lenin. In the USSR, under Joseph Stalin, Marxist dialectics became “diamat” (short for dialectical materialism), a theory emphasizing the primacy of the material way of life, social “praxis,” over all forms of social consciousness and the secondary, dependent character of the “ideal.” The term “dialectical materialism” was coined by the 19th-century social theorist Joseph Dietzgen who used the theory to explain the nature of **socialism** and social development. The original populariser of Marxism in Russia, Georgi Plekhanov used the terms “dialectical materialism” and “historical materialism” interchangeably. For Lenin, the primary feature of Marx's “dialectical materialism” (Lenin's term) was its application of materialist philosophy to history and social sciences. Lenin's main input in the philosophy of dialectical materialism was his theory of reflection, which presented human consciousness as a dynamic reflection of the objective material world that fully shapes its contents and structure. Later, Stalin's works on the subject established a rigid and formalistic division of Marxist–Leninist theory in the dialectical materialism and historical materialism parts. While the first was supposed to be the key method and theory of the philosophy of nature, the second was the Soviet version of the philosophy of history.

A dialectical method was fundamental to Marxist politics, e.g., the works of Karl Korsch, Georg Lukács and certain members of the Frankfurt School. Soviet academics, notably Evald Ilyenkov and Zaid Orudzhev, continued pursuing

unorthodox philosophic study of Marxist dialectics; likewise in the West, notably the philosopher Bertell Ollman at New York University.

Friedrich Engels proposed that Nature is dialectical, thus, in *Anti-Dühring* he said that the negation of negation is:

A very simple process, which is taking place everywhere and every day, which any child can understand as soon as it is stripped of the veil of mystery in which it was enveloped by the old idealist philosophy.* [50]

In *Dialectics of Nature*, Engels said:

Probably the same gentlemen who up to now have decried the transformation of quantity into quality as mysticism and incomprehensible transcendentalism will now declare that it is indeed something quite self-evident, trivial, and commonplace, which they have long employed, and so they have been taught nothing new. But to have formulated for the first time in its universally valid form a general law of development of Nature, society, and thought, will always remain an act of historic importance.* [51]

Marxist dialectics is exemplified in *Das Kapital* (Capital), which outlines two central theories: (i) surplus value and (ii) the materialist conception of history; Marx explains dialectical materialism:

In its rational form, it is a scandal and abomination to bourgeoisdom and its doctrinaire professors, because it includes in its comprehension an affirmative recognition of the existing state of things, at the same time, also, the recognition of the negation of that state, of its inevitable breaking up; because it regards every historically developed social form as in fluid movement, and therefore takes into account its transient nature not less than its momentary existence; because it lets nothing impose upon it, and is in its essence critical and revolutionary.* [52]

Class struggle is the central contradiction to be resolved by Marxist dialectics, because of its central role in the social and political lives of a society. Nonetheless, Marx and Marxists developed the concept of class struggle to comprehend the dialectical contradictions between mental and manual labor, and between town and country. Hence, philosophic contradiction is central to the development of dialectics – the progress from quantity to quality, the acceleration of gradual social change; the negation of the initial development of the *status quo*; the negation of that negation; and the high-level recurrence of features of the original *status quo*. In the USSR, Progress Publishers issued anthologies of dialectical materialism by Lenin, wherein he also quotes Marx and Engels:

As the most comprehensive and profound doctrine of development, and the richest in content, Hegelian dialectics was considered by Marx and Engels the greatest achievement of classical German philosophy.... “The great basic thought”, Engels writes, “that the world is not to be comprehended as a complex of ready-made things, but as a complex of processes, in which the things, apparently stable no less than their mind images in our heads, the concepts, go through an uninterrupted change of coming into being and passing away... this great fundamental thought has, especially since the time of Hegel, so thoroughly permeated ordinary consciousness that, in its generality, it is now scarcely ever contradicted.

But, to acknowledge this fundamental thought in words, and to apply it in reality in detail to each domain of investigation, are two different things.... For dialectical philosophy nothing is final, absolute, sacred. It reveals the transitory character of everything and in everything; nothing can endure before it, except the uninterrupted process of becoming and of passing away, of endless ascendancy from the lower to the higher. And dialectical philosophy, itself, is nothing more than the mere reflection of this process in the thinking brain.” Thus, according to Marx, dialectics is “the science of the general laws of motion both of the external world and of human thought” .* [53]

Lenin describes his dialectical understanding of the concept of *development*:

A development that repeats, as it were, stages that have already been passed, but repeats them in a different way, on a higher basis (“the negation of the negation”), a development, so to speak, that proceeds in spirals, not in a straight line; a development by leaps, catastrophes, and revolutions; “breaks in continuity”; the transformation of quantity into quality; inner impulses towards development, imparted by the contradiction and conflict of the various forces and tendencies acting on a given body, or within

a given phenomenon, or within a given society; the interdependence and the closest and indissoluble connection between all aspects of any phenomenon (history constantly revealing ever new aspects), a connection that provides a uniform, and universal process of motion, one that follows definite laws – these are some of the features of dialectics as a doctrine of development that is richer than the conventional one.*[53]

In practice, Marxist dialectics was frequently used as a tool of **eristic** and **propaganda**. In 1857 Marx explained that in a letter to Engels, commenting on his predictions published in **New York Times**:

It is possible that I could disgrace myself. But there's always a bit of Dialectic to help out. I have naturally expressed my statements so that I am also right if the opposite thing happens.*[54]

20.3 Indian forms of dialectic

20.3.1 Indian continental debate: an intra- and inter-Dharmic dialectic

Anacker (2005: p. 20), in the introduction to his translation of seven works by the Buddhist monk **Vasubandhu** (fl. 4th century), a famed **dialectician** of the **Gupta Empire**, contextualizes the prestige of dialectic and cut-throat debate in classical India and makes references to the possibly apocryphal story of the banishment of **Moheyan** post-debate with **Kamalaśīla** (fl. 713–763):

Philosophical debating was in classical India often a spectator-sport, much as contests of poetry-improvisation were in Germany in its High Middle Ages, and as they still are in the Telugu country today. The king himself was often the judge at these debates, and loss to an opponent could have serious consequences. To take an atrociously extreme example, when the Tamil Śaivite Nānasambandar Nāyanār defeated the Jain ācāryas in Madurai before the Pāṇḍya King Māravarman Avaniśūlāmani (620-645) this debate is said to have resulted in the impalement of 8000 Jains, an event still celebrated in the Mīnāksi Temple of Madurai today. Usually, the results were not so drastic; they could mean formal recognition by the defeated side of the superiority of the winning party, forced conversions, or, as in the case of the *Council of Lhasa*, which was conducted by Indians, banishment of the losers.*[55]

Brahmana/Vedic/Hindu dialectic

See also: **Hindu philosophy**

While Western philosophy traces dialectics to ancient Greek thought of **Socrates** and **Plato**, the idea of tension between two opposing forces leading to synthesis is much older and present in Hindu Philosophy.*[56] Indian philosophy, for the most part subsumed within the **Indian religions**, has an ancient tradition of dialectic polemics. The two complements, "**purusha**" (the active cause) and the "**prakṛiti**" (the passive nature) brings everything into existence. They follow the "**ṛta**", the **Dharma** (Universal Law of Nature).

Jain dialectic

Further information: **Jain philosophy**, **Anekantavada** and **Syadvada**

Anekantavada and Syadvada are the sophisticated dialectic traditions developed by the Jains to arrive at truth. As per **Jainism**, the truth or the reality is perceived differently from different points of view, and that no single point of view is the complete truth.*[57]*[58] Jain doctrine of Anekantavada states that an object has infinite modes of existence and qualities and, as such, they cannot be completely perceived in all its aspects and manifestations, due to the inherent limitations of being human. Only the **Kevalis**—the omniscient beings—can comprehend the object in all its aspects and manifestations, and that all others are capable of knowing only a part of it. Consequently, no one view can claim to represent the absolute truth. According to Jains, the ultimate principle should always be logical and no principle can be devoid of logic or reason.*[59] Thus one finds in the **Jain texts**, deliberative exhortations on any subject in all its facts, may they be constructive or obstructive, inferential or analytical, enlightening or destructive.*[60]

Syādvāda is a theory of conditioned predication that provides an expression to anekānta by recommending that epithet *Syād* be attached to every expression.*[61] Syādvāda is not only an extension of Anekānta ontology, but a separate system of logic capable of standing on its own force. The Sanskrit etymological root of the term Syād is “perhaps” or “maybe”, but in context of syādvāda, it means “in some ways” or “from a perspective.” As reality is complex, no single proposition can express the nature of reality fully. Thus the term “syāt” should be prefixed before each proposition giving it a conditional point of view and thus removing any dogmatism in the statement.*[62] Since it ensures that each statement is expressed from seven different conditional and relative view points or propositions, it is known as theory of conditioned predication. These seven propositions also known as *saptabhangi* are:*[63]

1. *syād-asti*: “in some ways it is”
2. *syād-nāsti*: “in some ways it is not”
3. *syād-asti-nāsti*: “in some ways it is and it is not”
4. *syād-asti-avaktavyaḥ*: “in some ways it is and it is indescribable”
5. *syād-nāsti-avaktavyaḥ*: “in some ways it is not and it is indescribable”
6. *syād-asti-nāsti-avaktavyaḥ*: “in some ways it is, it is not and it is indescribable”
7. *syād-avaktavyaḥ*: “in some ways it is indescribable”

Buddhist dialectic

See also: [Buddhist philosophy](#)

Buddhism has developed sophisticated, and sometimes highly institutionalized traditions of dialectics during its long history. Nalanda University, and later the Gelugpa Buddhism of Tibet, are examples. The historical development and clarification of Buddhist doctrine and polemics, through dialectics and formal debate, is well documented. Buddhist doctrine was rigorously critiqued (though not ultimately refuted) in the 2nd century by Nagarjuna, whose uncompromisingly logical approach to the realisation of truth, became the basis for the development of a vital stream of Buddhist thought. This dialectical approach of Buddhism, to the elucidation and articulation of an account of the Cosmos as the truth it really is, became known as the Perfection of Wisdom and was later developed by other notable thinkers, such as Dignaga and Dharmakirti (between 500 and 700). The dialectical method of truth-seeking is evident throughout the traditions of Madhyamaka, Yogacara, and Tantric Buddhism. Trisong Detsen, and later Je Tsongkhapa, championed the value of dialectic and of formalised training in debate in Tibet.

20.4 Dialectical theology

Neo-orthodoxy, in Europe also known as theology of crisis and dialectical theology,*[64]*[65] is an approach to theology in Protestantism that was developed in the aftermath of the First World War (1914–1918). It is characterized as a reaction against doctrines of 19th-century liberal theology and a more positive reevaluation of the teachings of the Reformation, much of which had been in decline (especially in western Europe) since the late 18th century.*[66] It is primarily associated with two Swiss professors and pastors, Karl Barth*[67] (1886–1968) and Emil Brunner (1899–1966),*[64]*[65] even though Barth himself expressed his unease in the use of the term.*[68]

20.5 Dialectical method and dualism

Another way to understand dialectics is to view it as a method of thinking to overcome formal dualism and monistic reductionism.*[69] For example, formal dualism regards the opposites as mutually exclusive entities, whilst monism finds each to be an epiphenomenon of the other. Dialectical thinking rejects both views. The dialectical method requires focus on both at the same time. It looks for a transcendence of the opposites entailing a leap of the imagination to a higher level, which (1) provides justification for rejecting both alternatives as false and/or (2) helps elucidate a real but previously veiled integral relationship between apparent opposites that have been kept apart and regarded as distinct. For example, the superposition principle of quantum physics can be explained using the dialectical method

of thinking—likewise the example below from **dialectical biology**. Such examples showing the relationship of the dialectic method of thinking to the scientific method to a large part negates the criticism of Popper (see text below) that the two are mutually exclusive. The dialectic method also examines false alternatives presented by formal dualism (materialism vs idealism; rationalism vs empiricism; mind vs body, etc.) and looks for ways to transcend the opposites and form synthesis. In the dialectical method, both have something in common, and understanding of the parts requires understanding their relationship with the whole system. The dialectical method thus views the whole of reality as an evolving process.

20.6 Criticisms

Some philosophers have offered criticisms of dialectic, and hostility and receptivity to dialectics divided 20th-century Anglo-American philosophy from the so-called “continental” tradition, a divide that only a few contemporary philosophers (among them, G.H. von Wright, Paul Ricoeur, Hans-Georg Gadamer, Richard Rorty, Charles Taylor) have ventured to bridge.

Dialectics has become central to “Continental” philosophy, but it plays no part in “Anglo-American” philosophy. In other words, on the continent of Europe, dialectics has entered intellectual culture as what might be called a legitimate part of thought and philosophy, whereas in America and Britain, the dialectic plays no discernible part in the intellectual culture, which instead tends toward **positivism**. A prime example of the European tradition is Jean-Paul Sartre's *Critique of Dialectical Reason*, which is very different from the works of Popper, whose philosophy was for a time highly influential in the UK where he resided (see below). Sartre states:

"Existentialism, like **Marxism**, addresses itself to experience in order to discover there concrete syntheses. It can conceive of these syntheses only within a moving, dialectical totalisation, which is nothing else but history or—from the strictly cultural point of view adopted here—'philosophy-becoming-the world'." * [70]

Karl Popper has attacked the dialectic repeatedly. In 1937 he wrote and delivered a paper entitled “What Is Dialectic?” in which he attacked the dialectical method for its willingness “to put up with contradictions”. * [71] Popper concluded the essay with these words: “The whole development of dialectic should be a warning against the dangers inherent in philosophical system-building. It should remind us that **philosophy** should not be made a basis for any sort of scientific system and that philosophers should be much more modest in their claims. One task which they can fulfill quite usefully is the study of the critical **methods of science**” (Ibid., p. 335).

In chapter 12 of volume 2 of *The Open Society and Its Enemies* (1944; 5th rev. ed., 1966) Popper unleashed a famous attack on Hegelian dialectics, in which he held that Hegel's thought (unjustly, in the view of some philosophers, such as Walter Kaufmann, * [72]) was to some degree responsible for facilitating the rise of **fascism** in Europe by encouraging and justifying **irrationalism**. In section 17 of his 1961 “addenda” to *The Open Society*, entitled “Facts, Standards and Truth: A Further Criticism of Relativism,” Popper refused to moderate his criticism of the Hegelian dialectic, arguing that it “played a major role in the downfall of the liberal movement in Germany,... by contributing to **historicism** and to an identification of might and right, encouraged **totalitarian** modes of thought. . . . [and] undermined and eventually lowered the traditional standards of intellectual responsibility and honesty” * [73]

20.7 Formalism

In the past few decades, European and American logicians have attempted to provide mathematical foundations for dialectical logic or **argument**. There had been pre-formal treatises on argument and dialectic, from authors such as Stephen Toulmin (*The Uses of Argument*), Nicholas Rescher (*Dialectics*), and van Eemeren and Grootendorst (Pragma-dialectics). One can include the communities of **informal logic** and **paraconsistent logic**. However, building on theories of **defeasible reasoning** (see John L. Pollock), systems have been built that define well-formedness of arguments, rules governing the process of introducing arguments based on fixed assumptions, and rules for shifting burden. Many of these logics appear in the special area of **artificial intelligence and law**, though the computer scientists' interest in formalizing dialectic originates in a desire to build **decision support** and computer-supported collaborative work systems. * [74]

20.8 See also

Philosophy

- Chinese philosophy
- Critical theory (Frankfurt School)
- Dialectic process vs. dialogic process
- Dialectical behavioral therapy
- Dialectical research
- Dialogic
- Doublethink
- False dilemma
- Gotthard Günther
- Paradox
- Recursion
- Reflective equilibrium
- Relational dialectics
- Strange loop
- Synechism
- Taoism
- Universal dialectic

Interdisciplinary concepts

- Didactic method
- List of cycles
- Möbius strip

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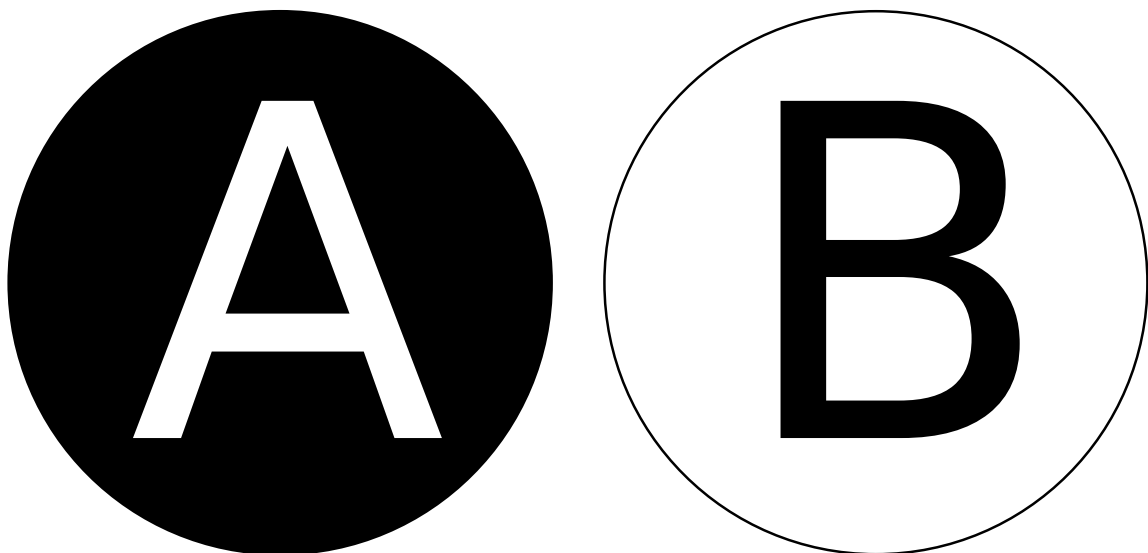
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- Dialectics for Kids

Chapter 21

Dichotomy

This article is about dichotomy in logic and related topics. For usage of “dichotomous” in botany, see [Glossary of botanical terms](#).

A **dichotomy** is a **partition** of a whole (or a set) into two parts (subsets) that are:



*An example of a dichotomy is the partition of a scene into **figure and ground** – the letters are foreground or figure; the rest is the background.*

- **jointly exhaustive**: everything must belong to one part or the other, and
- **mutually exclusive**: nothing can belong simultaneously to both parts.

Such a partition is also frequently called a bipartition.

The two parts thus formed are **complements**. In **logic**, the partitions are **opposites** if there exists a **proposition** such that it holds over one and not the other.

Treating **continuous variables** or **multicategorical variables** as **binary variables** is called dichotomization. The discretization error inherent in dichotomization is temporarily ignored for modeling purposes.

21.1 Etymology

The term dichotomy derived from the Greek language [διχοτομία ']'dichotomia' “dividing in two” from δίχα *dicha* “in two, asunder” and τομή *tome* “a cutting, incision” .

21.2 Usage

- The above applies directly when the term is used in **mathematics**, **philosophy**, **literature**, or **linguistics**. For example, if there is a concept A, and it is split into parts B and not-B, then the parts form a dichotomy: they are mutually exclusive, since no part of B is contained in not-B and vice versa, and they are jointly exhaustive, since they cover all of A, and together again give A.
- In **set theory**, a dichotomous relation R is such that either aRb , bRa , but not both. * [1]
- In **statistics**, dichotomous data may only exist at first two **levels of measurement**, namely at **nominal** level of measurement (such as in case of “British”, “American”, “Australian” etc. when measuring nationality) and at **ordinal** level of measurement (such as in case of “tall” vs “short”, when measuring height).
- In the **classification of mental disorders** in **psychiatry** or **clinical psychology**, dichotomous classification or **categorization** refers to the use of cut-offs intended to separate disorder from non-disorder at some level of abnormality, severity or disability
- A **false dichotomy** is an **informal fallacy** consisting of a supposed dichotomy which fails one or both of the conditions: it is not jointly exhaustive and/or not mutually exclusive. In its most common form, two entities are presented as if they are exhaustive, when in fact other alternatives are possible. In some cases, they may be presented as if they are mutually exclusive although there is a broad middle ground (see also **undistributed middle**).
- Divine Dichotomy as mentioned in the *Conversations With God* series of books by religious author **Neale Donald Walsch**
- In economics, the **classical dichotomy** is the division between the real side of the economy and the monetary side. According to the classical dichotomy, changes in monetary variables do not affect real values as output, employment, and the real interest rate. Money is therefore neutral in the sense that it cannot affect these real variables.
- In **biology**, a dichotomy is a division of organisms into two groups, typically based on a characteristic present in one group and absent in the other. Such dichotomies are used as part of the process of identifying species, as part of a **dichotomous key**, which asks a series of questions, each of which narrows down the set of organisms. A well known dichotomy is the question “does it have a backbone?” used to divide species into **vertebrates** and **invertebrates**.
- In **botany**, a dichotomy is a mode of branching by repeated **bifurcation** - thus a focus on branching rather than on division
- In **computer science**, more specifically in programming-language engineering, the term dichotomy can denote fundamental dualities in a language's design. For instance, **C++** has a dichotomy in its memory model (heap versus stack), whereas Java has a dichotomy in its type system (references versus primitive data types).
- In the anthropological field of **theology** and in **philosophy**, dichotomy is the belief that humans consist of a soul and a body. (See **Mind-body dichotomy**.) This stands in contrast to **trichotomy**.
- Perceived Dichotomies are common in Western thought. **C. P. Snow** believes that Western society has become an argument culture (**The Two Cultures**). In *The Argument Culture* (1998), **Deborah Tannen** suggests that the dialogue of Western culture is characterized by a warlike atmosphere in which the winning side has truth (like a trophy). Such a dialogue virtually ignores the middle alternatives.
- In **sociology** and **semiotics**, dichotomies (also sometimes called 'binaries' and/or 'binarisms') are the subject of attention because they may form the basis to divisions and inequality. For example, the **domestic–public dichotomy** divides men's and women's roles in a society; the **East-West dichotomy** contrasts the **Orient** and the **Occident**. Some social scientists attempt to **deconstruct** dichotomies in order to address the divisions and inequalities they create: for instance **Judith Butler**'s deconstruction of the **gender-dichotomy** and **Val Plumwood**'s deconstruction of the **human-environment dichotomy**.
- The **I Ching** and **taijitu** represent the yin yang theories of traditional **Chinese culture**. However, these do not represent a true dichotomy as the symbol incorporates a portion of each in the other, representing a dialectic.

- In **Dialectical Behavioral Therapy**, a treatment shown to have some success in treating some clients with **Borderline Personality Disorder**, an essential tool used is based on the idea of dichotomy. Dichotomy, in this case, is a self-defeating behavior using “all-or-nothing” or “black-and-white” thinking. The therapy teaches the patient how to change the dichotomy to a more “**dialectical**” (or “seeing the middle ground”) way of thinking.
- One type of dichotomy is dichotomous classification - classifying objects by recursively splitting them into two groups until all are separated and in their own unique category.
- **Astronomy** defines a dichotomy as “the phase of the moon or an inferior planet in which half its disk appears illuminated”

21.3 See also

- Binary opposition
- Bipartite (disambiguation)
- Borderline personality disorder
- Class (set theory)
- Dialectical behavioral therapy
- Dichotomy paradox
- Dualism
- Polychotomy
- Trichotomy (disambiguation)
- Yin and yang

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21.5 External links

- The dictionary definition of dichotomy at Wiktionary

Chapter 22

Dilemma

For other uses, see [Dilemma \(disambiguation\)](#).

“Between a rock and a hard place” redirects here. For other uses, see [Between a Rock and a Hard Place \(disambiguation\)](#).

A **dilemma** (Greek: δίλημμα “double proposition”) is a **problem** offering two possibilities, neither of which is practically acceptable. One in this position has been traditionally described as “**being on the horns of a dilemma**”, neither horn being comfortable. This is sometimes more colorfully described as “Finding oneself impaled upon the horns of a dilemma” , referring to the sharp points of a bull's horns, equally uncomfortable (and dangerous).

The dilemma is sometimes used as a **rhetorical device**, in the form “you must accept either A, or B”; here A and B would be propositions each leading to some further conclusion. Applied incorrectly, it constitutes a false **dichotomy**, a fallacy.

22.1 Types

Colorful names have been given to many types of dilemmas.

- **Catch-22**: damned if you do, damned if you don't
- **Chicken or egg**: which is first of two things, each of which presupposes the other
- **Double bind**: conflicting requirements ensure that the victim will automatically be wrong.
- **Ethical dilemma**: a choice between moral imperatives.
- **Extortion**: the choice between paying the extortionist and suffering an unpleasant action.
- **Fairness dilemmas**: when groups are faced with making decisions about how to share their resources, rewards, or payoffs.
- **Hobson's choice**: a choice between something and nothing; “take it or leave it” .
- **Morton's fork**: choices yield equivalent, often undesirable, results.
- **Prisoner's dilemma**: An inability to coordinate makes cooperation difficult and defection tempting.
- **Samaritan's dilemma**: the choice between providing charity and improving another's condition, and withholding it to prevent them from becoming dependent.
- **Sophie's choice**: a choice between two persons or things that will result in the death or destruction of the person or thing not chosen.
- **Zugzwang**: One must move and incur harm when one would prefer to make no move (esp. in chess).

22.2 Related terms

Several **idioms** describe dilemmas:

- "Between Scylla and Charybdis"
- "Lesser of two evils"
- "Between a rock and a hard place" , since both objects or metaphorical choices are rough.
- "Between the devil and the deep blue sea"
- "Out of the frying pan, into the fire"

A dilemma with more than two forks is sometimes called a **trilemma** (3), **tetralemma** (4), or more generally a **polylemma**.

The errant spelling **dilemma** is often seen in common usage. It appears to have been taught in many areas of the United States and all over the world, including (but not limited to) France, England, Jamaica and Australia. ^[1]^[2]^[3] There is no **prima facie** reason for this substitution error and there is no erroneous parallel to be found with the word **lemma**, from which dilemma derives.

22.3 Use in logic

In formal **logic**, the definition of a dilemma differs markedly from everyday usage. Two options are still present, but choosing between them is immaterial because they both imply the same conclusion. Symbolically expressed thus:

$$A \vee B, A \Rightarrow C, B \Rightarrow C, \vdash C$$

Which can be translated informally as “one (or both) of A or B is known to be true, but they both imply C, so regardless of the **truth values** of A and B we can conclude C.” This is a **rule of inference** called **Disjunction elimination**.

There are also **constructive dilemmas** and **destructive dilemmas**.

22.3.1 Constructive dilemmas

1. (If X, then Y) and (If W, then Z).
2. X or W.
3. Therefore, Y or Z.

22.3.2 Destructive dilemmas

1. (If X, then Y) and (If W, then Z).
2. Not Y or not Z.
3. Therefore, not X or not W.

22.4 See also

- Coordination game
- Dilemma analysis
- Dilemma story
- Paradox
- There are known knowns

22.5 References

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Chapter 23

Discourse

For other uses, see [Discourses \(disambiguation\)](#).

Discourse (from Latin *discursus*, meaning “running to and from”) denotes written and spoken **communications** such as: ^{*}[1]

- In **semantics** and **discourse analysis**: A generalization of the concept of **conversation** within all modalities and contexts.
- The totality of codified language (vocabulary) used in a given field of intellectual enquiry and of social practice, such as legal discourse, medical discourse, religious discourse, et cetera. ^{*}[2]
- In the work of **Michel Foucault**, and that of the social theoreticians he inspired: *discourse* describes “an entity of sequences, of signs, in that they are enouncements (*énoncés*)” . ^{*}[3]

An **enouncement** (from French *l' énoncé*, meaning “the statement”) is not a unit of **semiotic** signs, but an abstract construct that allows the signs to assign and communicate specific, repeatable relations to, between, and among objects, subjects, and statements. ^{*}[3] Hence, a discourse is composed of semiotic sequences (relations among signs) between and among objects, subjects, and statements. The term **discursive formation** conceptually describes the regular communications (written and spoken) that produce such discourses. As a philosopher, Foucault applied the discursive formation in the analyses of large bodies of knowledge, such as **political economy** and **natural history**. ^{*}[4]

In the first sense-usage (semantics and discourse analysis), the word *discourse* is studied in **corpus linguistics**. In the second sense (the codified language of a field of enquiry), and in the third sense (a statement, *un énoncé*), the analyses of *discourse* are effected in the intellectual traditions that investigate and determine the relations among language and structure and agency, as in the fields of **sociology**, **feminist studies**, **anthropology**, **ethnography**, **cultural studies**, **literary theory**, and the **philosophy of science**. Moreover, because discourses are bodies of text meant to communicate specific data, information, and knowledge, there exist internal relations within a given discourse, and external relations among discourses, because a discourse does not exist in isolation (*per se*), but in relation to other discourses, which are determined and established by means of **inter discourse** and **interdiscursivity**. Hence, within a field of intellectual enquiry, the practitioners occasionally debate “What is” and “What is not” *discourse*, according to the conceptual meanings (denotation and connotation) used in the given field of study.

23.1 The humanities

In the **humanities** and in the **social sciences**, the term *discourse* describes a formal way of thinking that can be expressed through language, a social boundary that defines what can be said about a specific topic.

Discourses are seen to affect our views on all things; it is not possible to avoid discourse. For example, two notably distinct discourses can be used about various **guerrilla** movements describing them either as “**freedom fighters**” or “**terrorists**”. In other words, the chosen discourse provides the vocabulary, expressions and perhaps also the style needed to communicate.

Discourses are embedded in different rhetorical genres and metagenres that constrain and enable them. That is language talking about language, for instance the *American Psychiatric Association's DSMIV* manual tells which terms have to be used in talking about mental health, thereby mediating meanings and dictating practices of the professionals of psychology and psychiatry.*[5]

Discourse is closely linked to different theories of *power* and *state*, at least as long as defining discourses is seen to mean defining reality itself. This conception of discourse is largely derived from the work of French philosopher Michel Foucault.

23.2 Modernism

Modern theorists were focused on achieving progress and believed in the existence of natural and social laws which could be used universally to develop knowledge and thus a better understanding of society.*[6] Modernist theorists were preoccupied with obtaining the truth and reality and sought to develop theories which contained certainty and predictability.*[7] Modernist theorists therefore viewed discourse as being relative to talking or way of talking and understood discourse to be functional.*[8] Discourse and language transformations are ascribed to progress or the need to develop new or more “accurate” words to describe new discoveries, understandings, or areas of interest.*[8] In modern times, language and discourse are dissociated from power and ideology and instead conceptualized as “natural” products of common sense usage or progress.*[8] *Modernism* further gave rise to the liberal discourses of rights, equality, freedom, and justice; however, this rhetoric masked substantive inequality and failed to account for differences, according to Regnier.*[9]

23.3 Structuralism

Structuralist theorists, such as *Ferdinand de Saussure* and *Jacques Lacan*, argue that all human actions and social formations are related to *language* and can be understood as systems of related elements.*[10] This means that the “...individual elements of a system only have significance when considered in relation to the structure as a whole, and that structures are to be understood as self-contained, self-regulated, and self-transforming entities.”*[11] In other words, it is the structure itself that determines the significance, meaning and function of the individual elements of a system. Structuralism has made an important contribution to our understanding of language and social systems.*[12] *Saussure's* theory of *language* highlights the decisive role of meaning and signification in structuring human life more generally.*[10]

23.4 Postmodernism

Following the perceived limitations of the modern era, emerged *postmodern* theory.*[6] Postmodern theorists rejected modernist claims that there was one theoretical approach that explained all aspects of society.*[7] Rather, postmodernist theorists were interested in examining the variety of experience of individuals and groups and emphasized differences over similarities and common experiences.*[8]

In contrast to modern theory, postmodern theory is more fluid and allows for individual differences as it rejected the notion of social laws. Postmodern theorists shifted away from truth seeking and instead sought answers for how truths are produced and sustained. Postmodernists contended that truth and knowledge is plural, contextual, and historically produced through discourses. Postmodern researchers therefore embarked on analyzing discourses such as texts, language, policies and practices.*[8]

French social theorist *Michel Foucault* developed a notion of discourse in his early work, especially the *Archaeology of knowledge* (1972). In *Discursive Struggles Within Social Welfare: Restaging Teen Motherhood*,*[13] Iara Lessa summarizes Foucault's definition of discourse as “systems of thoughts composed of ideas, attitudes, courses of action, beliefs and practices that systematically construct the subjects and the worlds of which they speak.” Foucault traces the role of discourses in wider social processes of legitimating and power, emphasizing the construction of current truths, how they are maintained and what power relations they carry with them.” Foucault later theorized that discourse is a medium through which power relations produce speaking subjects.*[8] Foucault (1977, 1980) argued that power and knowledge are inter-related and therefore every human relationship is a struggle and negotiation of power.*[14] Foucault further stated that power is always present and can both produce and constrain the truth.*[8]

Discourse according to Foucault (1977, 1980, 2003) is related to power as it operates by rules of exclusion. Discourse therefore is controlled by objects, what can be spoken of; ritual, where and how one may speak; and the privileged, who may speak.*[15] Coining the phrases **power-knowledge** Foucault (1980) stated knowledge was both the creator of power and creation of power. An object becomes a “node within a network.” In his work, *The Archaeology of Knowledge*, Foucault uses the example of a book to illustrate a node within a network. A book is not made up of individual words on a page, each of which has meaning, but rather “is caught up in a system of references to other books, other texts, other sentences.” The meaning of that book is connected to a larger, overarching web of knowledge and ideas to which it relates.

One of the key discourses that Foucault identified as part of his critique of power-knowledge was that of **neoliberalism**, which he related very closely to his conceptualization of **governmentality** in his lectures on biopolitics.*[16] This trajectory of Foucault's thinking has been taken up widely within **Human Geography**.

23.5 See also

- Critical discourse analysis
- *Discipline and Punish*
- Discourse Community
- Episteme
- Interdiscursivity
- Parrhesia
- Political discourse analysis
- Postcolonial literature
- The Philosophical Discourse of Modernity - A 1985 essay by *Jürgen Habermas*, regarded as an important contribution to *Frankfurt School critical theory*.

23.6 Notes

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23.8 External links

- Interdisciplinary research portal discourse analysis. Register and get the news in discourse analysis.
- Beyond Open Access: Open Discourse, the next great equalizer, *Retrovirology* 2006, 3:55

Chapter 24

Double-barreled question

A **double-barreled question** (sometimes, *double-direct question* ^[1]) is an **informal fallacy**. It is committed when someone asks a question that touches upon more than one issue, yet allows only for one answer. ^[2] ^[3] ^[4] This may result in inaccuracies in the attitudes being measured for the question, as the respondent can answer only one of the two questions, and cannot indicate which one is being answered. ^[5]

Many double-barreled questions can be detected by the existence of the **grammatical conjunction** "and" in them. ^[2] ^[3] This is not a foolproof test, as the word "and" can exist in properly constructed questions.

A question asking about three items is known as "triple (triple, treble)-barreled." ^[4] In legal proceedings, a double-barreled question is called a **compound question**. ^[6]

24.1 Examples

An example of a double-barreled question would be the following: "do you think that students should have more classes about history and culture?" This question asks about two different issues: "do you think that students should have more classes about history" and "do you think that students should have more classes about culture?" Combining both questions into one makes it unclear what exactly is being measured, and as each question may elicit a different response if asked separately there is an increased likelihood of confusing the respondents. ^[2] In other words, while some respondents would answer "yes" to both and some "no" to both, some would like to answer both "yes and no". ^[4]

Other examples of double-barreled questions:

- "Please agree or disagree with the following statement: Cars should be faster and safer." ^[3]
- "How satisfied are you with your pay and job conditions?" ^[4]
- "How often and how much time do you spend on each visit to a hospital?" ^[5]
- "Does your department have a special recruitment policy for men and women?" ^[5]
- "Do you think that there is a good market for the product and that it will sell well?"
- "Should the government spend less money on the military and more on education?"
- "Is this tool interesting and useful?"

The same considerations apply to questions with **fixed choice answers**, as an answer can also be double-barreled. For example, if a question asks, "What motivates you to work?" an answer "Pleasant work and nice co-workers" is double-barreled. ^[4]

Buttering-up is a type of a double-barreled question. It happens when one of the questions is a question that the questioned person will want to answer "yes" to, and another that the questioner hopes will be answered with the same "yes." For example, "Would you be a nice guy and lend me five bucks?"

Some questions may not be double-barreled but confusingly similar enough to a double-barreled question to result in similar issues. For example, the question “Should the organization reduce paperwork required of employees by hiring more administrators?” can be interpreted as composed of two questions: “Should the organization reduce paperwork required of employees?” and “Should the organization hire more administrators?”

Double-barreled questions have been asked by professionals, resulting in notable skewed media reports and research pieces. For example, Harris Poll used double-barreled questions in the 1980s, investigating the US public opinion on Libya–United States relations, and American attitudes toward Mikhail Gorbachev. *^[7]

24.2 Legal usage

In a legal trial, a compound question will likely raise an objection, as the witness may be unable to provide a clear answer to the inquiry. For example, consider an imagined dialogue between a cross-examining attorney and a witness:

A: “So instead of murdering your neighbor, did you go home and bake a pie which you donated to the Girl Scouts bake sale?”

W: “No.”

A: “So you admit you murdered your neighbor!”

Strictly speaking, this is not actually confessing to the murder because having some other act that was done instead of the murder would still be consistent with the answer “no,” such as going shopping instead of killing the neighbor. Nonetheless, the answer to this question could be misleading, as the answer “no” would also be consistent with committing the murder. Such a question, if asked at trial, would properly be subject to an objection for being compound.

Compound questions are a common feature in loaded questions such as “Are you still beating your wife?” The argument is phrased as a single question requiring a single answer, but actually involves two or more issues that cannot necessarily be accurately answered with a single response. By combining the questions “Are you currently beating your wife?” and “Have you ever beaten your wife?” one can make it impossible for someone who has never beaten his wife to answer the question effectively with a simple “yes” or “no.” Instead, all questions must be answered. Therefore the innocent person should say, “I have never beaten my wife,” making it clear that no wife beating has ever occurred.

24.3 In popular culture

On his album *Mitch All Together*, Mitch Hedburg jokes about a supposed double-barreled question on his health insurance form: “Have you ever used sugar or PCP?”

24.4 See also

- Complex question
- Entailment (pragmatics)
- Fallacy of many questions
- Implicature
- Leading question
- Loaded question
- Mu (negative)
- Persuasive definition

- Poisoning the well
- Presupposition

24.5 References

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Chapter 25

Entailment (pragmatics)

In **pragmatics** (linguistics), **entailment** is the relationship between two sentences where the truth of one (A) requires the truth of the other (B).

For example, the sentence (A) *The president was assassinated.* entails (B) *The president is dead.* Notice also that if (B) is false, then (A) must necessarily be false. To show entailment, we must show that (A) being true forces (B) to be true, or, equivalently, that (B) being false forces (A) to be false.

Entailment differs from **implicature** (in their definitions for pragmatics), where the truth of one (A) suggests the truth of the other (B), but does not require it. For example, the sentence (A) *Mary had a baby and (B) got married* implicates that (A) she had a baby before (B) the wedding, but this is cancellable by adding – *not necessarily in that order*. Entailments are not cancellable.

Entailment also differs from **presupposition** in that in presupposition, the truth of what one is presupposing is taken for granted. A simple test to differentiate presupposition from entailment is negation. For example, both *The king of France is ill* and *The king of France is not ill* presuppose that there is a king of France. However *The president was not assassinated* no longer entails *The president is dead* (nor its opposite, as the president could have died in another way). In this case, presupposition remains under negation, but entailment does not.

25.1 Types of entailment

There are three types of entailment: formal or logical entailment, analytic entailment, synthetic entailment.

25.2 See also

- Compound question
- Downward entailing
- Loaded question

25.3 References

25.4 Further reading

- Entailment Regimes in SPARQL 1.1

Chapter 26

Euphemism



Sign in a Rite Aid drugstore using common American euphemisms for (from top) contraceptives, douches, tampons and menstrual pads

A **euphemism** is a generally innocuous word or expression used in place of one that may be found offensive or suggest something unpleasant.*[1] Some euphemisms are intended to amuse; while others use bland, inoffensive terms for things the user wishes to downplay. Euphemisms are used to refer to **taboo topics** (such as disability, sex, excretion, and death) in a polite way, or to mask **profanity**.*[2]

There are three antonyms of euphemism: *dysphemism*, *cacophemism*, and *loaded language*. Dysphemism can be either offensive or merely ironic; cacophemism is deliberately offensive. Loaded language evokes a visceral response beyond the meaning of the words.

26.1 Etymology

The word *euphemism* comes from the Greek word εὐφημία (*euphemia*), meaning “the use of words of good omen”, which in turn is derived from the Greek root-words *eû* (εὖ), “good, well” and *phémē* (φήμη) “prophetic speech; rumour, talk”. [3] Etymologically, the *eupheme* is the opposite of the *blaspheme* “evil-speaking.” The term *euphemism* itself was used as a euphemism by the ancient Greeks, meaning “to keep a holy silence” (speaking well by not speaking at all).

26.2 Formation

26.2.1 Phonetic modification

Phonetic euphemism is used to replace profanities, giving them the intensity of a mere interjection.

- Shortening or “clipping” the term (“Jeez” for Jesus, “What the—” for “What the hell”)
- Mispronunciations, such as “Frak”, “What the fudge” , “What the truck” , “Oh my gosh” , “Frickin” , “Darn” , “Oh, shoot” , “Be-yotch” , etc.
- Using the first letter (“SOB” , “What the eff” , “BS”). Sometimes, the word “word” is added after it (“F word” , “S word” , “B word”). Also, the letter can be phonetically respelled, for example, the word “piss” was shortened to “pee” in this way.

26.2.2 Figures of speech

- *Ambiguous* statements (*it* for excrement, *the situation* or “a girl in trouble” for pregnancy, *going to the other side* for death, *do it* or *come together* in reference to a sexual act, *tired and emotional* for drunkenness)
- *Understatements* (“asleep” for dead, “hurt” for injured, etc.)
- *Metaphors*, such as “beat the meat” , “choke the chicken” , “take a dump” , “drain the main vein” , etc.
 - Comparisons, like “wiener” for “penis” , “buns” for “buttocks” , “weed” for “cannabis” .
- *Metonymy* (“lose a person” for dying, “drinking” for consuming alcohol, “men's room” for men's toilet)

26.2.3 Rhetoric

Euphemism may be used as a *rhetorical strategy*, in which case its goal is to change the *valence* of a description from positive to negative.

26.2.4 Slang

Using a less harsh term with similar meaning. For instance, “screwed up” is a euphemism for “fucked up”; “hook-up” , “we hooked up” , or “laid” for *sexual intercourse*

There is some disagreement over whether certain terms are or are not euphemisms. For example, sometimes the phrase *visually impaired* is labeled as a *politically correct* euphemism for *blind*. However, *visual impairment* can be a broader term, including, for example, people who have partial sight in one eye, those with uncorrectable mild to moderate poor vision, or even those who wear glasses, a group that would be excluded by the word *blind*.

26.2.5 Evolution

Euphemisms may be formed in a number of ways. **Periphrasis**, or **circumlocution**, is one of the most common: to “speak around” a given word, **implying** it without saying it. Over time, circumlocutions become recognized as established euphemisms for particular words or ideas.

To alter the pronunciation or spelling of a taboo word (such as a swear word) to form a euphemism is known as *taboo deformation*, or “minced oath”. In **American English**, words that are unacceptable on television such as *fuck*, may be represented by deformations such as *freak*, even in children's cartoons. [4] Some examples of **rhyming slang** may serve the same purpose: to call a person a *berk* sounds less offensive than to call a person a *cunt*, though *berk* is short for *Berkeley Hunt*, which rhymes with *cunt*. [5]

Bureaucracies frequently spawn euphemisms of a more deliberate nature, *doublespeak* expressions. For example, in the past the US military called contamination by **radioactive isotopes** *sunshine units*. [6] A practical death sentence in the Soviet Union during the **Great Purge** often used the clause “imprisonment *without right to correspondence*,” the person sentenced never had a chance to correspond because soon after imprisonment he would be shot. [7] As early as 1939, Nazi official **Reinhard Heydrich** used the term *Sonderbehandlung* (translated into English as “special treatment”) to mean **summary execution**, most likely by hanging, of persons who proved 'disciplinary problems' to the Nazis even before the Nazis began the **systematic extermination of the Jews**. Heinrich Himmler, aware that the word had come to be known to mean murder, replaced that euphemism with one in which Jews would be “guided” (to their deaths) through the slave-labor and extermination camps. [8] after having been “evacuated” to their doom. Such was part of the superficially-innocuous formulation *Endlösung der Judenfrage* which became infamous to the entire world during the Nuremberg Trials.

A euphemism may often devolve into a taboo word itself, through the linguistic process known as *pejoration* or *semantic change* described by **W.V.O. Quine**, [9] and more recently dubbed the “euphemism treadmill” by Harvard professor **Steven Pinker**. [10] For instance, *Toilet* is an 18th-century euphemism, replacing the older euphemism *House-of-Office*, which in turn replaced the even older euphemisms *privy-house* or *bog-house*. [11] In the 20th century, where the words *lavatory* or *toilet* were deemed inappropriate (e.g. in the United States), they were sometimes replaced with *bathroom* or *water closet*, which in turn became *restroom*, *W.C.*, or *washroom*.

26.3 Common examples

26.4 In popular culture

Main article: **Doublespeak**

Doublespeak is a term sometimes used for deliberate euphemistic misuse of incorrect words to disguise unacceptable meaning, as in a “Ministry of Peace” which wages war, a “Ministry of Love” which imprisons and tortures. It is a portmanteau of the terms “**newspeak**” and “**doublethink**”, which originate from George Orwell's novel *1984*.

The “Dead Parrot” sketch from *Monty Python's Flying Circus* contains an extensive list of euphemisms for death, including many cited above, referring to the deceased parrot that the character played by **John Cleese** had purchased.

The word euphemism itself can be used as a euphemism. In the animated TV special *Halloween is Grinch Night* (See **Dr. Seuss**), a child asks to go to the *euphemism*, where *euphemism* is being used as a euphemism for *outhouse*. This euphemistic use of “euphemism” also occurred in the play *Who's Afraid of Virginia Woolf?* where a character requests, “Martha, will you show her where we keep the, uh, euphemism?”

In Wes Anderson's film *Fantastic Mr. Fox*, the replacement of swear words by the word “cuss” became a humorous motif throughout the film.

In Tom Hanks' web series *Electric City*, the use of profanity has been censored by the word “expletive”.

In Isaac Asimov's *Foundation* series, the curses of the scientist **Ebling Mis** have all been replaced with the word “unprintable”. In fact, there is only one case of his curses being referred to as such, leading some readers to mistakenly assume that the euphemism is Ebling's, rather than Asimov's. The same word has also been used in his short story “Flies”.

26.5 See also

- Call a spade a spade
- Code word (figure of speech)
- Dead Parrot sketch
- Double entendre
- Dysphemism
- Framing (social sciences)
- Minimisation
- Polite fiction
- Political correctness
- Political euphemism
- Sexual slang
- Spin (public relations)
- Thomas Bowdler
- Word play

26.6 Notes

26.7 References

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Chapter 27

Exception that proves the rule

"The exception that proves the rule" is an exception to a generally accepted truth. This is an old fashioned use of the word 'prove', which means 'to test'. It does not mean that it demonstrates a rule to be true, but that it tests the rule. It is usually used these days when an exception to a rule has been identified: for example, Mutillidae are wasps without wings, and therefore are an exception that proves (tests) the rule that wasps fly.

"The exception [that] proves the rule" also means that the presence of an **exception** applying to a *specific* case establishes ("proves") that a *general rule* exists. For example, a sign that says "parking prohibited on Sundays" (the exception) "proves" that parking is allowed on the other six days of the week (the rule). A more explicit phrasing might be "the exception that proves *the existence of* the rule."

27.1 Use in English

Henry Watson Fowler's *Modern English Usage* identifies five ways in which the phrase is commonly used, here listed in order from most to least correct.

27.1.1 Original meaning

The phrase is derived from a legal principle of republican Rome: *exceptio probat regulam in casibus non exceptis* ("the exception confirms the rule in cases not excepted"), a concept first proposed by **Cicero** in his defence of **Lucius Cornelius Balbus**.^[1] This means a stated exception implies the existence of a rule to which it is the exception. The second part of Cicero's phrase, "*in casibus non exceptis*" or "in cases not excepted," is almost always missing from modern uses of the statement that "the exception proves the rule," which may contribute to frequent confusion and misuse of the phrase.

Fowler gives the following example of the original meaning:

Special leave is given for men to be out of barracks tonight till 11.00 p.m.; "The exception proves the rule" means that this special leave implies a rule requiring men, except when an exception is made, to be in earlier. The value of this in interpreting statutes is plain.

This legal principle is classically referred to as "*inclusio unius est exclusio alterius*" (Inclusion of one is to exclude the others). The idea is that if the promulgator of law finds reason to enumerate one exception, then it is only reasonable to infer no others were intended. The **Ninth Amendment of the United States Constitution** was enacted to explicitly suppress this principle by stating that "The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people."

The phrase may also be invoked to claim the existence of a rule that usually applies, when a case to which it does not apply is specially mentioned. For example, the fact that a nurse is described as "a male nurse" (the exception) could be taken as evidence that most nurses are female (the rule). This is a slightly looser interpretation of the original meaning.

27.1.2 Scientific sense

A case may appear at first sight to be an exception to the rule. However, when the situation is examined more closely, it is observed that the rule does not apply to this case, and thus the rule is shown to be valid after all.

Fowler's example is of a critic, Jones, who never writes a favourable review. So it is surprising when he writes a favourable review of a novel by an unknown author. Then it is discovered that the novel is his own, written under a pseudonym. Obviously the rule doesn't apply to this case (although the rule may need to be more precisely stated in future) and the previous evaluation of Jones's ill-nature toward others is re-affirmed.

An example of this use in science writing is laid out by Richard Dawkins in *The Ancestor's Tale*. *Cnidaria* is a **phylum** of animals including jellyfish, corals, and sea anemones. The rule is that all cnidarians, and *only* cnidarians, have specialized harpoon cells called cnidocytes, which they often use to capture and/or inject venom into prey. There is one exception to this rule. Some species of sea slugs of the nudibranch group have tentacles containing cnidocytes, even though the slugs aren't cnidarians. But it turns out that the slug eats jellyfish and passes the jellyfish's commandeered weapons, intact and still working, into its own tentacles. So examining the only known exception really proved the original rule valid after all.

27.1.3 Loose rhetorical sense

A rural village is “always” quiet. A local farmer rents his fields to a rock festival, which disturbs the quiet. In this example, saying “the exception proves the rule” is literally incorrect, but it is used to draw attention to the rarity of the exception, and to establish the status of the village prior to the exceptional event.

The general misuse of the phrase is attributable to the ambivalence of the word 'rule'. In the original sense, 'rule' is taken as a *strict* rule, while in the loose rhetorical sense 'rule' is taken to mean 'rule of thumb'.

A couple of examples of the loose rhetorical use would be to say: because Ted's wearing of jeans to work is considered *exceptional*, it proves the rule of thumb that most employees do not tend to wear jeans in that setting. The original sense of the phrase could only apply to this situation if it were somehow altered, for example: if all employees were informed, upon being hired, that “Ted is allowed to wear jeans” because of his relationship with the company's founders. In this way it is implied that none of the rest of them may be allowed (as a universal rule to which Ted is the *stated* exception) to wear jeans in the workplace.

If the original meaning of the phrase is preserved along with the original example of Ted, it will not fit. The simple fact that Ted *is* an exception (that an exception exists at all) proves that the statement about company employees is not a rule, it is merely a trend.

27.1.4 Jocular nonsense

It is also used in **jocular** nonsense. “I am always punctual.” “Were you on time for breakfast this morning?” “Well no, but the exception proves the rule.” In this case, the first speaker is aware that the phrase does not correctly apply to their initial statement, but is appealing to it ironically. However this is most likely because the person does not understand the meaning of the phrase itself, as opposed to some sort of attempt at irony.

27.1.5 Serious nonsense

“It will rain on my birthday, it always does.”

“It didn't rain last year.”

“But the exception proves the rule.”

The first speaker in this example has confused the meaning of the phrase, apparently believing that any exception to any rule “proves” the rule true; in this case, the notion that “the exception proves the rule *in cases not excepted*” is neither implied nor understood by the speaker.

27.2 Discussion

Fowler writes “The last of these is the only one that need to be objected to directly, though 3 & 4 bear the blame of bringing 5 into existence.” Fowler objects to the misuse of this proverb because it implies the following two beliefs:

- *Exceptions can always be neglected.*
- *A truth is all the truer if it is sometimes false.*

It was in objection to this misuse that Arthur Conan Doyle had his famous detective Sherlock Holmes utter the statement “I never make exceptions. An exception disproves the rule.”

27.2.1 Other interpretation

Giving an opposite reading to that above, Mark Forsyth claims in his book *The Etymologicon* that the “prove” in the expression comes from the Latin *probare*, meaning not so much to show as true as to test (as in *proving-ground*), and thus that “the exception that proves the rule” is a (*prima facie* or seeming) exception to a rule or hypothesis which tests whether or not the rule holds in all cases.*[2] This echoes the satirical explanation by Ambrose Bierce in the latter's *Devil's Dictionary* (s.v. *exception*):

Exception, *n.* A thing which takes the liberty to differ from other things of its class, as an honest man, a truthful woman, etc. “The exception proves the rule” is an expression constantly upon the lips of the ignorant, who parrot it from one another with never a thought of its absurdity. In the Latin, “*Exceptio probat regulam*” means that the exception *tests* the rule, puts it to the **proof**, not *confirms* it. The malefactor who drew the meaning from this excellent dictum and substituted a contrary one of his own exerted an evil power which appears to be immortal.

As an example, during the 2012 Webby Awards, actor Richard Dreyfuss chose to honor Steve Jobs by calling him an “Exception that proves the rule”. In the context of Jobs's success as CEO of Apple, this use could be understood to say that his performance or approach called the rule (*i.e.* the approaches of other companies) into serious question.

27.3 Use in other languages

In all of these languages the expression means “(the) exception(s) **confirm(s)** the rule”:

- Croatian: Iznimka koja **potvrđuje** pravilo
- Czech: Výjimka **potvrzuje** pravidlo
- Dutch: Uitzonderingen **bevestigen** de regel
- Estonian: Erand **kinnitab** reeglit
- Finnish: poikkeus **vahvistaa** säännön
- French: L'exception qui **confirme** la règle
- German: Ausnahmen **bestätigen** die Regel
- Greek: Η εξαίρεση **επιβεβαιώνει** τον κανόνα
- Hungarian: kivétel **erősíti** a szabályt
- Italian: L'eccezione che **conferma** la regola
- Norwegian: Unntaket som **bekrefter** regelen
- Polish: Wyjątek **potwierdza** regułę

- Portuguese: *A exce(p)ção **confirma** a regra*
- Slovak: *Výnimka **potvrzuje** pravidlo*
- Slovene: *Izjema **potrjuje** pravilo*
- Spanish: *La excepción que **confirma** la regla*
- Swedish: *Undantaget [som] **bekräftar** regeln*
- Romanian: *Excepția **confirmă** regula*
- Russian: *Исключение **подтверждает** правило*

27.4 References

- [1] The exception proves the rule, alt-usage-english.org
- [2] “The exception that proves the rule” , The Phrase Finder

27.5 See also

- Bending the rules
- Counterexample
- Extrapolation
- Out of left field
- Presupposition
- Reductio ad absurdum
- The proof of the pudding
- Exceptis - Official Company Website

27.6 External links

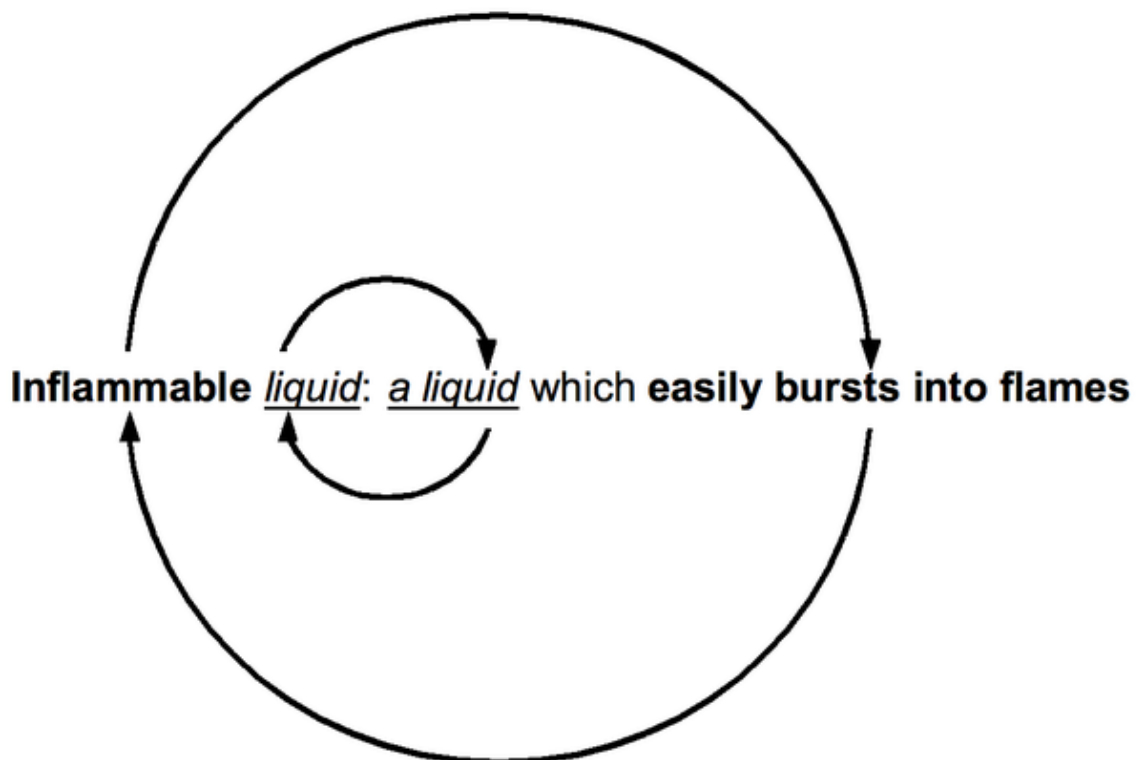
- The Straight Dope
- Pertinent entry of the alt.english.usage FAQ
- World Wide Words
- The Phrase Finder

Chapter 28

Fallacies of definition

Fallacies of definition are the various ways in which **definitions** can fail to explain terms. The phrase is used to suggest an **analogy** with an **informal fallacy**. “Definitions that fail to have merit because they are overly broad, use obscure or ambiguous language, or contain circular reasoning are called fallacies of definition.” * [1] Three major fallacies are overly broad, overly narrow, and mutually exclusive definitions, * [2] a fourth is incomprehensible definitions, * [3] and one of the most common * [4] is circular definitions. * [5]

28.1 Circularity



*Circular definition of inflammable liquid. * [4]*

If one concept is defined by another, and the other is defined by the first, this is known as a **circular definition**, akin to **circular reasoning**: neither offers enlightenment about what one wanted to know. * [6] “It is a fallacy because by using a synonym in the *definiens* the reader is told nothing significantly new.” * [4]

A straightforward example would be to define “Jew” as “a person believing in Judaism”, and “Judaism” as “the religion of the Jewish people”, which would make “Judaism” “the religion of the people believing in Judaism.”

28.2 Incongruity: overly broad or narrow

A definition intended to describe a given set of individuals fails if its description of matching individuals is incongruous: too broad (excessively loose with parameters) or too narrow (excessively strict with parameters). For example, “a shape with four sides of equal length” is not a good definition for “square”, because squares are not the only shapes that can have four sides of equal length; *rhombi* do as well. Likewise, defining a “rectangle” as “a shape with four perpendicular sides of equal length” is not useful because it is too narrow, as it describes only squares while excluding all other kinds of rectangles, thus being a plainly incorrect definition.

If a cow were defined as an animal with horns, this would be overly broad (including goats, for example), while if a cow were defined as a black-and-white quadruped, this would be both overly narrow (excluding all-black or all-white cows, for example)* [2] and overly broad (including *Dalmatians*, for example).

28.3 Obscurity

Definitions can go wrong by using *ambiguous*, *obscure*, or *figurative language*. If “beauty” is defined as “aesthetically successful”, one must continue to break down and define the following definition. This can lead to circular definitions. Definitions should be defined in the most prosaic form of language to be understood. Failure to elucidate provides fallacious definitions.* [6]

An example is *Samuel Johnson's* definition for *oats*: “A grain, which in England is generally given to horses, but in *Scotland* supports the people.”* [7]

28.4 Mutual exclusivity

The *definiens* of mutually exclusive definitions list characteristics which are the opposite of those found in the *definiendum*. An example would occur if a cow were defined as a flying animal with no legs.* [2]

28.5 Self-contradictory requirements

Definitions may fail by imposing conflicting requirements, making it impossible for them to apply to anything at all. An example would occur if a cow were defined as a *legless quadruped*.

28.6 See also

- Equivocation
- Fallacy
- Fallacy of division
- Fallacy of equivocation
- Fallacies of inference
- Formal fallacy

28.7 References

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Chapter 29

Fallacy

This article is about errors in reasoning. For the formal concept in philosophy and logic, see [formal fallacy](#). For other uses, see [Fallacy \(disambiguation\)](#).

A **fallacy** is the use of poor, or invalid, [reasoning](#) for the construction of an [argument](#).^[1]^[2] A fallacious argument may be deceptive by appearing to be better than it really is. Some fallacies are committed intentionally to manipulate or persuade by deception, while others are committed unintentionally due to carelessness or ignorance.

Fallacies are commonly divided into “formal” and “informal” . A [formal fallacy](#) can be expressed neatly in a standard system of logic, such as [propositional logic](#),^[1] while an [informal fallacy](#) originates in an error in reasoning other than an improper logical form.^[3] Arguments containing informal fallacies may be formally valid, but still fallacious.^[4]

29.1 Formal fallacy

Main article: [Formal fallacy](#)

A formal fallacy is a common error of thinking that can neatly be expressed in standard system of logic.^[1] An argument that is formally fallacious is rendered invalid due to a flaw in its logical structure. Such an argument is always considered to be wrong.

The presence of a formal fallacy in a [deductive](#) argument does not imply anything about the argument's premises or its conclusion. Both may actually be true, or may even be more probable as a result of the argument; but the deductive argument is still invalid because the conclusion does not follow from the premises in the manner described. By extension, an argument can contain a formal fallacy even if the argument is not a deductive one: for instance, an [inductive](#) argument that incorrectly applies principles of probability or [causality](#) can be said to commit a formal fallacy.

29.1.1 Common examples

Main article: [List of fallacies § Formal fallacies](#)

29.2 Aristotle's Fallacies

Aristotle was the first to systematize logical errors into a list. Aristotle's "[Sophistical Refutations](#)" (*De Sophisticis Elenchis*) identifies thirteen fallacies. He divided them up into two major types, those depending on language and those not depending on language.^[5] These fallacies are called verbal fallacies and material fallacies, respectively. A material fallacy is an error in what the arguer is talking about, while a verbal fallacy is an error in how the arguer is talking. Verbal fallacies are those in which a conclusion is obtained by improper or ambiguous use of words.^[6]

29.3 Whately's grouping of fallacies

Richard Whately defines a fallacy broadly as, “any argument, or apparent argument, which professes to be decisive of the matter at hand, while in reality it is not.” [7]

Whately divided fallacies into two groups: *logical* and *material*. According to Whately, logical fallacies are arguments where the conclusion does not follow from the premises. Material fallacies are not logical errors because the conclusion does follow from the premises. He then divided the logical group into two groups: purely logical and semi-logical. The semi-logical group included all of Aristotle's *sophisms* except: *ignoratio elenchi*, *petitio principii*, and *non causa pro causa*, which are in the material group. [8]

29.4 Intentional fallacies

Sometimes a speaker or writer uses a fallacy intentionally. In any context, including academic debate, a conversation among friends, political discourse, advertising, or for comedic purposes, the arguer may use fallacious reasoning to try to persuade the listener or reader, by means other than offering relevant evidence, that the conclusion is true.

Examples of this include the speaker or writer: diverting the argument to unrelated issues with a *red herring* (*Ignoratio elenchi*); insulting someone's character (*argumentum ad hominem*), assuming they are right by “begging the question” (*petitio principii*); making jumps in logic (*non-sequitur*); identifying a false cause and effect (*post hoc ergo propter hoc*); asserting that everyone agrees (*bandwagoning*); creating a “false dilemma” (“either-or fallacy”) in which the situation is oversimplified; selectively using facts (*card-stacking*); making false or misleading comparisons (*false equivalence* and “false analogy”); generalizing quickly and sloppily (*hasty generalization*). [9]

In humor, errors of reasoning are used for comical purposes. Groucho Marx used fallacies of *amphiboly*, for instance, to make ironic statements; Gary Larson employs fallacious reasoning in many of his cartoons. Wes Boyer and Samuel Stoddard have written a humorous essay teaching students how to be persuasive by means of a whole host of informal and formal fallacies. [10]

29.5 Deductive fallacy

Main articles: *Deductive fallacy* and *formal fallacy*

In philosophy, the term *formal fallacy* for **logical fallacies** and defined formally as: a flaw in the structure of a *deductive argument* which renders the argument *invalid*. The term is preferred as logic is the use of valid reasoning and a fallacy is an argument that uses poor reasoning therefore the term **logical fallacy** is an oxymoron. However, the same terms are used in informal discourse to mean an argument which is problematic for any reason. A logical form such as “A and B” is independent of any particular conjunction of meaningful propositions. Logical form alone can guarantee that given true premises, a true conclusion must follow. However, formal logic makes no such guarantee if any premise is false; the conclusion can be either true or false. Any formal error or logical fallacy similarly invalidates the deductive guarantee. Both the argument and all its premises must be true for a statement to be true.

29.6 Paul Meehl's Fallacies

In *Why I Do Not Attend Case Conferences** [11] (1973), psychologist Paul Meehl discusses several fallacies that can arise in medical case conferences that are primarily held to diagnose patients. These fallacies can also be considered more general errors of thinking that all individuals (not just psychologists) are prone to making.

- *Barnum effect*: Making a statement that is trivial, and true of everyone, e.g of all patients, but which appears to have special significance to the diagnosis.
- *Sick-sick fallacy* (“*pathological set*”): The tendency to generalize from personal experiences of health and ways of being, to the identification of others who are different from ourselves as being “sick” . Meehl emphasizes that though psychologists claim to know about this tendency, most are not very good at correcting it in their own thinking.

- *“Me too” fallacy*: The opposite of Sick-sick. Imagining that “everyone does this” and thereby minimizing a symptom without assessing the probability of whether a mentally healthy person would actually do it. A variation of this is *Uncle George's pancake fallacy*. This minimizes a symptom through reference to a friend/relative who exhibited a similar symptom, thereby implying that it is normal. Meehl points out that consideration should be given that the patient is not healthy by comparison but that the friend/relative is unhealthy.
- *Multiple Napoleons fallacy*: “It's not real to us, but it's 'real' to him.” A relativism that Meehl sees as a waste of time. There is a distinction between reality and delusion that is important to make when assessing a patient and so the consideration of comparative realities can mislead and distract from the importance of a patient's delusion to a diagnostic decision.
- *Hidden decisions*: Decisions based on factors that we do not own up to or challenge, and for example result in the placing of middle- and upper-class patients in therapy while lower-class patients are given medication. Meehl identifies these decisions as related to an implicit ideal patient who is young, attractive, verbal, intelligent, and successful (YAVIS). He sees YAVIS patients as being preferred by psychotherapists because they can pay for long-term treatment and are more enjoyable to interact with.
- *The spun-glass theory of the mind*: The belief that the human organism is so fragile that minor negative events, such as criticism, rejection, or failure, are bound to cause major trauma to the system. Essentially not giving humans, and sometimes patients, enough credit for their resilience and ability to recover.*[11]

29.7 Fallacies of Measurement

Increasing availability and circulation of **big data** are driving proliferation of new metrics for scholarly authority,*[12]*[13] and there is lively discussion regarding the relative usefulness of such metrics for measuring the value of knowledge production in the context of an “information tsunami.”*[14] Where **mathematical fallacies** are subtle mistakes in reasoning leading to invalid mathematical proofs, measurement fallacies are unwarranted inferential leaps involved in the extrapolation of raw data to a measurement-based value claim. The ancient Greek Sophist **Protagoras** was one of the first thinkers to propose that humans can generate reliable measurements through his “human-measure” principle and the practice of *dissoi logoi* (arguing multiple sides of an issue).*[15]*[16] This history helps explain why measurement fallacies are informed by **informal logic** and **argumentation theory**.

- *Anchoring fallacy*: **Anchoring** is a cognitive bias, first theorized by Amos Tversky and Daniel Kahneman, that “describes the common human tendency to rely too heavily on the first piece of information offered (the 'anchor') when making decisions.” In measurement arguments, anchoring fallacies can occur when unwarranted weight is given to data generated by metrics that the arguers themselves acknowledge is flawed. For example, limitations of the Journal Impact Factor (JIF) are well documented,*[17] and even JIF pioneer Eugene Garfield notes, “while citation data create new tools for analyses of research performance, it should be stressed that they supplement rather than replace other quantitative-and qualitative-indicators.”*[18] To the extent that arguers jettison acknowledged limitations of JIF-generated data in evaluative judgments, or leave behind Garfield's “supplement rather than replace” caveat, they court commission of anchoring fallacies.
- *Naturalistic Fallacy*: In the context of measurement, a **naturalistic fallacy** can occur in a reasoning chain that makes an unwarranted extrapolation from “is” to “ought,” as in the case of sheer quantity metrics based on the premise “more is better”*[14] or, in the case of developmental assessment in the field of psychology, “higher is better.”*[19]
- *False Analogy*: In the context of measurement, this error in reasoning occurs when claims are supported by unsound comparisons between data points, hence the **false analogy's** informal nickname of the “apples and oranges” fallacy.*[20] For example, the **Scopus** and **Web of Science** bibliographic databases have difficulty distinguishing between citations of scholarly work that are arms-length endorsements, ceremonial citations, or negative citations (indicating the citing author withholds endorsement of the cited work).*[21] Hence, measurement-based value claims premised on the uniform quality of all citations may be questioned on false analogy grounds.
- *Argumentum ex Silentio*: An **argument from silence** features an unwarranted conclusion advanced based on the absence of data. For example, Academic Analytics' **Faculty Scholarly Productivity Index** purports to measure overall faculty productivity, yet the tool does not capture data based on citations in books. This creates a

possibility that low productivity measurements using the tool may constitute *argumentum ex silentio* fallacies, to the extent that such measurements are supported by the absence of book citation data.

- *Ecological Fallacy*: An ecological fallacy is committed when one draws an inference from data based on the premise that qualities observed for groups necessarily hold for individuals; for example, “if countries with more Protestants tend to have higher suicide rates, then Protestants must be more likely to commit suicide.” *[22] In metrical argumentation, ecological fallacies can be committed when one measures scholarly productivity of a sub-group of individuals (e.g. “Puerto Rican” faculty) via reference to aggregate data about a larger and different group (e.g. “Hispanic” faculty).*[23]

29.8 Other systems of classification

Of other classifications of fallacies in general the most famous are those of **Francis Bacon** and **J. S. Mill**. Bacon (*Novum Organum*, Aph. 33, 38 sqq.) divided fallacies into four Idola (Idols, i.e. False Appearances), which summarize the various kinds of mistakes to which the human intellect is prone. With these should be compared the Offendicula of Roger Bacon, contained in the *Opus maius*, pt. i. J. S. Mill discussed the subject in book v. of his *Logic*, and **Jeremy Bentham**'s *Book of Fallacies* (1824) contains valuable remarks. See Rd. Whateley's *Logic*, bk. v.; A. de Morgan, *Formal Logic* (1847) ; A. Sidgwick, *Fallacies* (1883) and other textbooks.

29.9 Assessment of Fallacies - Pragmatic Theory

According to the pragmatic theory, *[24] a fallacy can in some instances be an error a fallacy, use of a heuristic (short version of an argumentation scheme) to jump to a conclusion. However, even more worryingly, in other instances it is a tactic or ploy used inappropriately in argumentation to try to get the best of a speech part unfairly. There are always two parties to an argument containing a fallacy - the perpetrator and the intended victim. The dialogue framework required to support the pragmatic theory of fallacy is built on the presumption that argumentative dialogue has both an adversarial component and a collaborative component. A dialogue has individual goals for each participant, but also collective (shared) goals that apply to all participants. A fallacy of the second kind is seen as more than simply violation of a rule of reasonable dialogue. It is also a deceptive tactic of argumentation, based on sleight-of-hand. Aristotle explicitly compared contentious reasoning to unfair fighting in athletic contest. But the roots of the pragmatic theory go back even further in history to the Sophists. The pragmatic theory finds its roots in the Aristotelian conception of a fallacy as a sophistical refutation, but also supports the view that many of the types of arguments traditionally labelled as fallacies are in fact reasonable techniques of argumentation that can be used, in many cases, to support legitimate goals of dialogue. Hence on the pragmatic approach, each case needs to be analyzed individually, to determine by the textual evidence whether the argument is fallacious or reasonable.

29.10 See also

Lists

- List of cognitive biases
- List of fallacies
- List of memory biases
- List of paradoxes

Concepts

- Association fallacy
- Cogency
- Cognitive bias

- Cognitive distortion
- Demagogy
- Evidence
- Fallacies of definition
- False premise
- False statement
- Invalid proof
- Mathematical fallacy
- Paradox
- Prosecutor's fallacy
- Sophism
- Soundness
- Truth
- Validity
- Victim blaming

Works

- *Attacking Faulty Reasoning*
- *Straight and Crooked Thinking*

29.11 References

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29.12 Further reading

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- John Buridan, *Summulae de dialectica* Book VII.
- Francis Bacon, the doctrine of the idols in *Novum Organum Scientiarum*, Aphorisms concerning The Interpretation of Nature and the Kingdom of Man, XXIIIff. fly.hiwaay.net
- Arthur Schopenhauer, The Art of Controversy | *Die Kunst, Recht zu behalten* - *The Art Of Controversy* (bilingual), (also known as “Schopenhauers 38 stratagems”). gutenberg.net
- John Stuart Mill, A System of Logic - Raciocinative and Inductive. Book 5, Chapter 7, Fallacies of Confusion. la.utexas.edu

29.13 External links

- Fallacies entry by Hans Hansen in the *Stanford Encyclopedia of Philosophy*
- Informal logic entry in the *Stanford Encyclopedia of Philosophy*
- Fallacy entry in the *Internet Encyclopedia of Philosophy*
- Fallacy at PhilPapers
- Appeal to Authority Appeal to Authority Logical Fallacy
- FallacyFiles.org contains categorization of fallacies with examples.
- 42 informal logical fallacies explained by Dr. Michael C. Labossiere (including examples), nizkor.org
- Humbug! The skeptic's field guide to spotting fallacies in thinking – textbook on fallacies. scribd.com
- List of fallacies with clear examples, infidels.org
- Interactive Syllogistic Machine A web based syllogistic machine for exploring fallacies, figures, and modes of syllogisms.
- Logical Fallacies and the Art of Debate, csun.edu
- LogicalFallacies.Info
- Stephen Downes Guide to the Logical Fallacies, onegoodmove.org
- WebCitation archive.

Chapter 30

Genitive case

In grammar, **genitive** (abbreviated **gen**;^{*}[1] also called the **possessive case** or **second case**) is the grammatical case that marks a noun as modifying another noun. It often marks a noun as being the possessor of another noun;^{*}[2] however, it can also indicate various other relationships than possession: certain verbs may take arguments in the genitive case, and it may have adverbial uses (see *Adverbial genitive*).

Placing the modifying noun in the genitive case is one way to indicate that two nouns are related in a **genitive construction**. Modern English typically does not morphologically mark nouns for a genitive case in order to indicate a genitive construction; instead, it uses either the *'s* clitic or a preposition (usually *of*). However, the personal pronouns do have distinct possessive forms. There are various other ways to indicate a genitive construction, as well. For example, many Afroasiatic languages place the head noun (rather than the modifying noun) in the **construct state**.

Depending on the language, specific varieties of genitive-noun–main-noun relationships may include:

- possession (see *possessive case*, *possessed case*):
 - inalienable possession ("Janet' s height" , "Janet' s existence" , "Janet' s long fingers")
 - alienable possession ("Janet' s jacket" , "Janet' s drink")
 - relationship indicated by the noun being modified ("Janet' s husband")
- composition (see *Partitive*):
 - substance ("a wheel of cheese")
 - elements ("a group of men")
 - source ("a portion of the food")
- participation in an action:
 - as an agent ("She benefited from her father's love") – this is called the *subjective genitive* (Compare "Her father loved her" , where *Her father* is the *subject*.)
 - as a patient ("the love of music") – this is called the *objective genitive* (Compare "She loves music" , where *music* is the *object*.)
- origin ("men of Rome")
- reference ("the capital of the Republic" or "the Republic's capital")
- description ("man of honour" , "day of reckoning")
- compounds ("doomsday" ("doom's day"), Scottish Gaelic "ball coise" = "football" , where "coise" = gen. of "cas" , "foot")
- apposition (Japanese 富士の山 (*Fuji no Yama*), "Mount Fuji"; Latin *urbs Romae* ("city of Rome"))

Depending on the language, some of the relationships mentioned above have their own distinct cases different from the genitive.

Possessive pronouns are distinct pronouns, found in Indo-European languages such as English, that function like pronouns inflected in the genitive. They are considered separate pronouns if contrasting to languages where pronouns are regularly inflected in the genitive. For example, English *my* is either a separate **possessive adjective** or an irregular genitive of *I*, while in Finnish, for example, *minun* is regularly **agglutinated** from *minu-* “I” and *-n* (genitive).

In some languages, nouns in the genitive case also **agree** in case with the nouns they modify (that is, it is marked for two cases). This phenomenon is called **suffixaufnahme**.

In some languages, nouns in the genitive case may be found in **inclusio** – that is, between the main noun’s article and the noun itself.

Many languages have a genitive case, including Albanian, Arabic, Armenian, Basque, Dutch, Estonian, Finnish, Georgian, German, Greek, Icelandic, Irish, Latin, Latvian, Lithuanian, Romanian, Sanskrit, Scottish Gaelic, Turkish and all Slavic languages except Bulgarian and Macedonian. English does not have a proper genitive case, but a possessive ending, *-’s*, although some pronouns have irregular possessive forms which may more commonly be described as genitives; see **English possessive**.

30.1 Chinese (Cantonese)

The particle 嘅 (*ge*) or the possessed noun’s classifier is used to denote possession for singular nouns, while the particle 啲 (*di*) is used for plural nouns.

Examples:

- 爸爸嘅屋企 *bā bā ge ūk kái* (father’s house/home)
- 我間屋 *ngóh gāan ūk* (my house)
- 係佢啲書. *haih kéuih di shyu* (It’s his books.)

30.2 Chinese (Mandarin)

In Mandarin Chinese, the genitive case is made by use of the particle 的 (*de*).

For instance: 我的猫 (My cat). 我 = I 猫 = Cat

However, when talking about persons in relation to one’s self, it is common to drop 的 when the context allows for it to be easily understood.

For instance: 我妈妈 and 我的妈妈 both mean “My mother”.

30.3 English

For more details on this topic, see **English possessive**.

Old English had a genitive case, which has left its mark in modern English in the form of the possessive ending *-’s* (now sometimes referred to as the “Saxon genitive”), as well as possessive pronoun forms such as *his*, *theirs*, etc., and in certain words derived from **adverbial genitives** such as *once* and *afterwards*. (Other Old English case markers have generally disappeared completely.) The modern English possessive forms are not normally considered to represent a grammatical case, although they are sometimes referred to as genitives or as belonging to a **possessive case**. One of the reasons that the status of *-’s* as a case ending is often rejected is that it attaches to the end of a noun phrase and not necessarily to the **head** noun itself, as in *the king of Spain’s daughter*, not *the king’s daughter of Spain* as would be expected if *-’s* were a case inflection on the noun *king* (and as was done in older forms of English).

30.4 Finnic genitives and accusatives

Finnic languages (Finnish, Estonian) have genitive cases.

In Finnish, prototypically the genitive is marked with *-n*, e.g. *maa – maan* “country – of the country”. The stem may change, however, with consonant gradation and other reasons. For example, in certain words ending in consonants, *-e-* is added, e.g. *mies – miehen* “man – of the man”, and in some, but not all words ending in *-i*, the *-i* is changed to an *-e-*, to give *-en*, e.g. *lumi – lumen* “snow – of the snow”. The genitive is used extensively, with animate and inanimate possessors. In addition to the genitive, there is also a **partitive case** (marked *-ta/-tä* or *-a/-ä*) used for expressing that something is a part of a larger mass, e.g. *joukko miehiä* “a group of men”.

In Estonian, the genitive marker *-n* has elided with respect to Finnish. Thus, the genitive always ends with a vowel, and the singular genitive is sometimes (in a subset of words ending with a vowel in nominative) identical in form to nominative.

In Finnish, in addition to the uses mentioned above, there is a construct where the genitive is used to mark a surname. For example, *Juhani Virtanen* can be also expressed *Virtasen Juhani* (“Juhani of the Virtanens”).

A complication in Finnic languages is that the **accusative case** *-(e)n* is homophonic to the genitive case. This case does not indicate possession, but is a syntactic marker for the object, additionally indicating that the action is **telic** (completed). In Estonian, it is often said that only a “genitive” exists. However, the cases have completely different functions, and the form of the accusative has developed from **(e)m*. (The same sound change has developed into a synchronic mutation of a final *m* into *n* in Finnish, e.g. genitive *sydämen* vs. nominative *sydän*.) This homophony has exceptions in Finnish, where a separate accusative *-(e)t* is found in pronouns, e.g. *kenet* “who (telic object)”, vs. *kenen* “whose”.

A difference is also observed in some of the related **Sámi languages**, where the pronouns and the plural of nouns in the genitive and accusative are easily distinguishable from each other, e.g., *kuä'ččkmi* “eagles' (genitive plural)” and *kuä'ččkmid* “eagles (accusative plural)” in Skolt Sami.

30.5 German

The genitive case is used in the **German language** to show possession. For example:

- das Buch *der* Schülerin (the book *of the* schoolgirl) - Feminine
- das Buch *des* Schülers (the book *of the* schoolboy) - Masculine

An *s* is simply added to the end of the name if the identity of the possessor is specified. For example:

- *Claudias* Buch (Claudia's book)

There is also a genitive case of **German pronouns** such as *dein* (your) and *mein* (my).

The genitive case is also used for objects of some prepositions, such as *trotz* (despite), *wegen* (because of), *[an]statt* (instead of), *während* (during), and is required as the case of the direct object for some verbs, e.g. *gedenken*, *sich erfreuen*, *bedürfen*: usage: *wir gedachten **der Verstorbenen*** - We remembered the dead; *wir erfreuen uns **des schönen Wetters*** - We're happy about the nice weather.

All of the articles change in the genitive case.

Adjective endings in genitive case:

The following prepositions can take the genitive: *außerhalb*, *innerhalb*, *statt*, *trotz*, *während*, *wegen*, and *dank*.

The genitive case is widely avoided in most colloquial and dialectal varieties of German. It is replaced by the **dative case** after verbs and prepositions, and by means of the preposition *von* (“of”) in other contexts. However, this usage is not accepted in the written standard language.

30.6 Japanese

The Japanese possessive is constructed by using the suffix *-no* の to make the genitive case. For example:

Nominative: 猫 *neko* ('cat'); 手 *te* ('hand, paw')

Genitive: 猫の手 *neko-no te* ('cat's paw')

It also uses the suffix *-na* な for adjectival noun; in some analyses adjectival nouns are simply nouns that take *-na* in the genitive, forming a complementary distribution (*-no* and *-na* being allomorphs).

Typically, languages have nominative case nouns converting into genitive case. It has been found, however, that Japanese will in rare cases allow accusative case to convert to genitive, if specific conditions are met in the clause in which the conversion appears. This is referred to as “Accusative-Genitive conversion.” *^[3]

30.7 Korean

The possessive in Korean can be formed using the ending *-ui* 'ㅁ'.

This is a car. *igeoseun jadongchayeyo*. ㅁㅁㅁㅁㅁㅁㅁ.

This is the man's car. *igeoseun geu namja-ui jadongchayeyo*. ㅁㅁㅁㅁㅁㅁㅁㅁㅁㅁ.

30.8 Latin

The genitive is one of the cases of nouns and pronouns in Latin. Latin genitives still have certain modern scientific uses:

- Scientific names of living things sometimes contain genitives, as in the plant name *Buddleja davidii*, meaning “David's buddleia”. Here *Davidii* is the genitive of *Davidius*, a Latinized version of the English name. It is not capitalized because it is the second part of a binomial name.
- Names of astronomical constellations are Latin, and the genitives of their names are used in naming objects in those constellations, as in the Bayer designation of stars. For example, the brightest star in the constellation Virgo is called *Alpha Virginis*, which is to say “Alpha of Virgo”, as *virginis* is the genitive of *virgō*.
- *Modus operandi*, which can be translated to English as “mode of operation”, in which *operandi* is a singular genitive *gerund* (i.e. “of operation”), not a plural of *operandus* as is sometimes mistakenly assumed.

30.9 Irish

The Irish language also uses a genitive case (*tuiseal ginideach*). For example in the phrase *bean an tí* (woman of the house), *tí* is the genitive case of *teach*, meaning “house”. Another example is *barr an chnoic*, “top of the hill”, where *cnoc* means “hill”, but is changed to *chnoic*, which also incorporates lenition.

30.10 Persian

Main article: *Ezāfe*

Old Persian had a true genitive case inherited from Proto-Indo-European. By the time of Middle Persian, the genitive case had been lost and replaced by an analytical construction which is now called *Ezāfe*. This construction was inherited by New Persian, and was also later borrowed into numerous other Iranian, Turkic and Indo-Aryan languages of Western and South Asia.

30.11 Semitic languages

Genitive case marking existed in Proto-Semitic, Akkadian, and Ugaritic. It indicated possession, and it is preserved today only in literary Arabic

30.11.1 Akkadian

Nominative: *šarrum* (king)

Genitive: *aššat šarrim* (wife of king = king's wife)

30.11.2 Arabic

Called *المجرور* *al-majrūr* (meaning “dragged”) in Arabic, the Genitive case functions both as an indication of ownership (ex. the door **of the house**) and for nouns following a preposition.

Nominative: بيت *baytun* (a house)

Genitive: باب بيت *bābu baytin* (the door of a house) باب البيت *bābu l-bayti* (the door of the house)

The Arabic genitive marking also appears after prepositions.

e.g. باب لبيت *bābun li-baytin* (a door **for** a house)

The Semitic genitive should not be confused with the pronominal possessive suffixes that exist in all the Semitic languages

e.g. Arabic بيتي *bayt-i* (my house) كتابك *kitābu-ka* (your [masc.] book).

30.12 Slavic languages

With the exception of Bulgarian and Macedonian, all **Slavic languages** decline the nouns and adjectives in accordance with the genitive case using a variety of endings depending on the word's **lexical category**, its gender, and number (singular or plural).

30.12.1 Possessives

To indicate possession the ending of the noun indicating the possessor changes to *a*, *я*, *и* or *у*, depending on the word's ending in the nominative case and similar cases in other Slavic languages. For example:

Nominative: "Вот Антон" (“Here is Anton”).

Genitive: "Вот карандаш Антона" (“Here is Anton's pencil”).

Possessives can also be formed by the construction "У [subject] есть [object]".

Nominative: "Вот Сергей" (“Here is Sergei”).

Genitive: "У Сергея есть карандаш" (“Sergei has a pencil”).

In sentences where the possessor includes an associated pronoun, the pronoun also changes:

Nominative: "Вот мой брат" (“Here is my brother”).

Genitive: "У моего брата есть карандаш" (“My brother has a pencil”).

And in sentences denoting negative possession, the ending of the object noun also changes:

Nominative: "Вот Ирина" (“Here is Irina”).

Genitive: "У Ирины нет карандаша" (“Irina does not have a pencil”). Note that *нет* is a contraction of “не” + “есть”.

30.12.2 To express negation

The genitive case is also used in sentences expressing negation, even when no possessive relationship is involved. The ending of the subject noun changes just as it does in possessive sentences. The genitive, in this sense, can only be used to negate nominative, accusative and genitive sentences, and not other cases.

Nominative: "Мария дома?" ("Is Maria at home?").

Genitive: "Марии нет дома" ("Maria is not at home," literally, "Of Maria there is none at home.").

Accusative: Могу (про)читать ваш почерк ("I can read your hand writing")

Genitive: Не могу (про)читать **вашего** почерка ("I can't read your handwriting")

Use of genitive for negation is obligatory in Slovene, Polish and Old Church Slavonic. The East Slavic languages (Russian, Ukrainian, and Belorussian) employ either the accusative or genitive for negation, albeit the genitive is more commonly used. In Czech, Slovak and Serbo-Croatian, negating with the genitive case is perceived as rather archaic and the accusative is preferred, but genitive negation in these languages is still not uncommon, especially in music and literature.*[4]

30.12.3 Partial direct object

The genitive case is used with some verbs and mass nouns to indicate that the action covers only a part of the direct object (having a function of non-existing partitive case), whereas similar constructions using the Accusative case denote full coverage. Compare the sentences:

Genitive: "Я выпил воды" ("I drank water," i.e. "I drank some water, part of the water available")

Accusative: "Я выпил воду" ("I drank **the** water," i.e. "I drank all the water, all the water in question")

In Russian, special partitive case or sub-case is observed for some uncountable nouns which in some contexts have preferred alternative form on -у/ю instead of standard genitive on -а/я: выпил чаю ('drank some tea'), but сорта чая ('sorts of tea').

30.12.4 Prepositional constructions

The genitive case is also used in many prepositional constructions.

- Czech prepositions using genitive case: od (from), z, ze (from), do (into), bez (without), kromě (excepting), místo (instead of), podle (after, according to), podél (along), okolo (around), u (near, by), vedle (beside), během (during), pomocí (using, by the help of), stran (as regards) etc.

30.13 Turkish

The Turkish possessive is constructed using two suffixes: a genitive case for the possessor and a possessive suffix for the possessed object. For example:

Nominative: *Kadın* ('woman'); *ayakkabı* ('shoe')

Genitive: *Kadının ayakkabısı* ('the woman's shoe')

30.14 Albanian

The genitive in Albanian is formed with the help of clitics. For example:

Nominative: *libër* ('book'); *vajzë* ('girl');
 Genitive: *libri i vajzës* (the girl's book)

If the possessed object is masculine, the clitic is *i*. If the possessed object is feminine, the clitic is *e*. If the possessed object is plural, the clitic is *e* regardless of the gender.

The genitive is used with some prepositions: *me anë* ('by means of'), *nga ana* ('on behalf of', 'from the side of'), *për arsye* ('due to'), *për shkak* ('because of'), *me përjashtim* ('with the exception of'), *në vend* ('instead of').

30.15 Kannada

In Kannada, the genitive case-endings are:

for masculine or feminine nouns ending in "ನ" (a): ನ (na)

- Examples: *sūrya-na* ('of the sun')

for neuter nouns ending in "ದ" (a): ದ (da)

- Examples: *mara-da* ('of the tree')

for all nouns ending in "ಇ" (i), "ಃ" (ī), "ಎ" (e), or "ಒ" (ē): ಇ (a)

- Examples: *mane-y-a* ('of the house'; note that a linking “y” is added between the stem and the suffix)

for all nouns ending in "ಉ" (u), "ಊ" (ū), "ಱ" (ṛ), or "ಔ" (ṛ): ಱ (ina)

- Examples: *guru-v-ina* ('of the teacher'; note that a linking “v” is added between the stem and the suffix)

Most postpositions in Kannada take the genitive case.

30.16 See also

- [Genitive construction](#)
- [Possessive case](#)

30.17 References

- [1] [Glossing Rules](#). Department of Linguistics. Max Planck Institute for Evolutionary Anthropology. Leipzig.
- [2] [Dictionary.com, genitive](#)
- [3] Shin' ya, Asano; Hiroyuki Una (February 2010). "Mood and Case: with special reference to genitive Case conversion in Kansai Japanese." . *Journal of East Asian Linguistics* **19** (1): 37–59. doi:10.1007/s10831-009-9055-y.
- [4] Olga Kagan (2007). "Property-Denoting NPs and Non-Canonical Genitive Case" (PDF). *Proceedings of the 17th Semantics and Linguistic Theory conference* (CLC Publications, Cornell University). Retrieved January 27, 2013.

30.18 External links

- [German genitive case](#) A lesson covering the genitive case in the German language
- [Russian genitive:](#) , ,
- [Genitive Case In Arabic](#)

Chapter 31

Gotcha journalism

Gotcha journalism is a pejorative term used by media critics to describe interviewing methods that appear designed to entrap interviewees into making statements that are damaging or discreditable to their cause, character, integrity, or reputation.*[1] The term, which emerged in the run-up to the 2008 U.S. Presidential Election,*[2] is rooted in an assertion that the interviewer may be supporting a hidden agenda, and aims to make film or sound recordings of the interviewee which may be selectively edited, compiled, and broadcast or published in order to intentionally show the subject in an unfavorable light.*[3] The term derives from the word **gotcha**, a contracted form of “got you” .

31.1 Techniques

Techniques discussed here can be used to get a subject with something genuinely discreditable to hide to reveal wrongdoing; there can be a fine line between robust and gotcha journalism.

Some methods claimed to be gotcha journalism by those involved include moving away from the agreed upon topic of the interview and switching to an embarrassing subject that was agreed to be out-of-bounds and leading the interviewee to discuss it and commit to a certain answer, then, confronting them with prepared material designed to contradict or discredit that position. Gotcha journalism is often designed to keep the interviewee on the defensive by, for example, being required to explain some of their own statements taken out of context thus effectively preventing the interviewee from clearly presenting their position.*[3]

The intent of gotcha journalism is always premeditated and used to defame or discredit the interviewees by portraying them as self-contradictory, malevolent, unqualified, or immoral.*[4] This effect is also achieved by replaying selected quotes from public speeches and following with hand-picked footage or images that appear to reinforce negative images of the interviewee.

As an example of gotcha journalism, a city's mayor might give a speech in which he claims that during his **tenure** employment is at a record high in his city. A news outlet may replay that speech and follow up with footage of desperate men and women at the unemployment office, and perhaps even an interview in which the person is asked to comment on the mayor's speech. The interviewee in this case may be baited with questions that have very obvious answers such as, “The mayor says unemployment is a record low; how do you respond to that?”

Gotcha journalism may also be achieved by misleading an interviewee about which portions of his or her statements will be aired, or misleading the audience about how an expert opinion is acquired. For example, a special feature may be run on drug use in schools. To add sensationalism, an “expert” may be given manufactured statistics that imply that a three-fold increase in drug use is occurring in suburban schools, and asked to comment on what it might mean, if real. The expert may issue a statement such as, “If this were actually happening, this trend would be alarming – thank goodness it's not!” To discredit this expert, the whole clip may be aired, in which the reporter narrates, “We asked Dr. John Q. Smith to comment on drug use in schools” followed by the clip of this quote, in which it appears that Dr. Smith is in denial over drugs in school. Alternatively, if Dr. Smith's quote makes the case that the reporter wishes to have made, the narration might state, “We asked Dr. John Q. Smith what he thinks of the increase in drug use and he said,” followed by the section of the clip in which Smith says, “this trend would be alarming.”

Manipulation of quotes, images, and archive footage is typical in the editing process, especially for news magazines, and does not cross over into gotcha journalism until there is a deliberate attempt to mislead an interviewee, expert, or the audience. Most commonly this manifests by finding footage of exceptions to a generalization given by a speaker

or interviewee. For example, in the weeks following Hurricane Katrina public officials stated that progress was being made. A number of news outlets transmitted these statements followed by footage of flooded homes, abandoned neighborhoods, and interviews with the many people still affected by the disaster. The officials may or may not have been lying, but showing some continuing problems does not prove lack of progress in general.

31.2 Gotcha journalism in the United States

In 1964, the pivotal U.S. Supreme Court case (*New York Times Co. v. Sullivan*, 376 U.S. 254) ended most libel protection recourse for public figures in the United States effectively clearing the way for intrusive or adversarial reportage into the public or private affairs of public figures by news media outlets whether newspapers, TV or radio. Public figures could no longer sue for libel, regardless of the bias of news media, without proof that the media had acted maliciously. * [5]

31.3 See also

- Concision (media studies)
- Sound bite

31.4 References

- [1] Two Cheers for Minority Government: The Evolution of Canadian Parliamentary Democracy By Peter H. Russell 2008 p167
- [2] <http://www.google.com/trends/explore#q=%22gotcha%20journalism%22>
- [3] Be A Freelance Writer Surayud Chulanont Global Media ISBN 81-89940-33-3, ISBN 978-81-89940-33-1
- [4] With Malice Toward All? Patricia Moy, Michael Pfau p43
- [5] Bill Clinton – Nigel Hamilton p284

31.5 External links

- 1999 Associated Press article archived at Jefferson City (MO) News Tribune
- 2004 spotlight article at macmillandictionary.com
- 2004 article at mikehersh.com
- 2005 article from San Francisco Chronicle

Chapter 32

Implicature

Implicature is a technical term in the **pragmatics** subfield of **linguistics**, coined by **H. P. Grice**, which refers to what is *suggested* in an utterance, even though neither expressed nor *strictly implied* (that is, **entailed**) by the utterance.* [1] For example, the sentence "*Mary had a baby and got married*" strongly suggests that Mary had the baby before the wedding, but the sentence would still be *strictly true* if Mary had her baby after she got married. Further, if we add the qualification "*—not necessarily in that order*" to the original sentence, then the implicature is *cancelled* even though the meaning of the original sentence is not altered.

"Implicature" is an alternative to "implication," which has additional meanings in **logic** and informal language.

32.1 Types of implicature

32.1.1 Conversational implicature

Paul Grice identified three types of general conversational implicatures:

1. The speaker deliberately flouts a **conversational maxim** to convey an additional meaning not expressed literally. For instance, a speaker responds to the question "How did you like the guest lecturer?" with the following utterance:

Well, I' m sure he was speaking English.

If the speaker is assumed to be following the **cooperative principle**,* [2] in spite of flouting the **Maxim of Quantity**, then the **utterance** must have an additional nonliteral meaning, such as: "The content of the lecturer's speech was confusing."

2. The speaker' s desire to fulfill two conflicting maxims results in his or her flouting one maxim to invoke the other. For instance, a speaker responds to the question "Where is John?" with the following utterance:

He' s either in the cafeteria or in his office.

In this case, the Maxim of Quantity and the **Maxim of Quality** are in conflict. A cooperative speaker does not want to be ambiguous but also does not want to give false information by giving a specific answer in spite of his uncertainty. By flouting the Maxim of Quantity, the speaker invokes the Maxim of Quality, leading to the implicature that the speaker does not have the evidence to give a specific location where he believes John is.

3. The speaker invokes a maxim as a basis for interpreting the utterance. In the following exchange:

Do you know where I can get some gas?

There' s a gas station around the corner.

The second speaker invokes the **Maxim of Relevance**, resulting in the implicature that "the gas station is open and one can probably get gas there" .

Scalar implicature

According to Grice (1975), another form of conversational implicature is also known as a **scalar implicature**. This concerns the conventional uses of words like “all” or “some” in conversation.

I ate some of the pie.

This sentence implies “I did not eat all of the pie.” While the statement “I ate some pie” is still true if the entire pie was eaten, the conventional meaning of the word “some” and the implicature generated by the statement is “not all”.

32.1.2 Conventional implicature

Conventional implicature is independent of the cooperative principle and its four maxims. A statement always carries its conventional implicature.

Donovan is poor but happy.

This sentence implies poverty and happiness are not compatible but in spite of this Donovan is still happy. The conventional interpretation of the word “but” will always create the implicature of a sense of contrast. So *Donovan is poor but happy* will always necessarily imply “Surprisingly Donovan is happy in spite of being poor”.

32.2 Implicature vs entailment

This can be contrasted with cases of entailment. For example, the statement “The president was assassinated” not only suggests that “The president is dead” is true, but requires that it be true. The first sentence could not be true if the second were not true; if the president were not dead, then whatever it is that happened to him would not have counted as a (successful) assassination. Similarly, unlike implicatures, entailments cannot be cancelled; there is no qualification that one could add to “The president was assassinated” which would cause it to cease entailing “The president is dead” while also preserving the meaning of the first sentence.

32.3 See also

- Allofunctional implicature
- Cooperative principle
- Gricean maxims
- Entailment, or *implication*, in logic
- Entailment (pragmatics)
- Explicature
- Indirect speech act
- Intrinsic and extrinsic properties
- Presupposition

32.4 References

- [1] Blackburn 1996, p. 189.
- [2] Kordić 1991, pp. 89–92.

32.5 Bibliography

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32.6 Further reading

- Kent, Bach (2006). “The Top 10 Misconceptions about Implicature” (PDF). in: Birner, B.; Ward, G. *A Festschrift for Larry Horn*. Amsterdam: John Benjamins.

32.7 External links

- “Implicature” in the Stanford Encyclopedia of Philosophy
- The Top 10 Misconceptions about Implicature by Kent Bach (2005)

Chapter 33

Indicative conditional

In natural languages, an **indicative conditional** [1]*[2] is the **logical operation** given by statements of the form “If A then B”. Unlike the **material conditional**, an indicative conditional does not have a stipulated definition. The philosophical literature on this operation is broad, and no clear consensus has been reached.

33.1 Distinctions between the material conditional and the indicative conditional

The material conditional does not always function in accordance with everyday if-then reasoning. Therefore there are drawbacks with using the material conditional to represent if-then statements.

One problem is that the material conditional allows implications to be true even when the antecedent is irrelevant to the **consequent**. For example, it's commonly accepted that the sun is made of gas, on one hand, and that 3 is a prime number, on the other. The standard definition of implication allows us to conclude that, if the sun is made of gas, then 3 is a prime number. This is arguably synonymous to the following: the sun's being made of gas makes 3 be a prime number. Many people intuitively think that this is false, because the sun and the number three simply have nothing to do with one another. Logicians have tried to address this concern by developing alternative logics, e.g., **relevant logic**.

For a related problem, see **vacuous truth**.

Another issue is that the material conditional is not designed to deal with **counterfactuals** and other cases that people often find in if-then reasoning. This has inspired people to develop **modal logic**.

A further problem is that the material conditional is such that $P \text{ AND } \neg P \rightarrow Q$, regardless of what Q is taken to mean. That is, a contradiction implies that absolutely everything is true. Logicians concerned with this have tried to develop **paraconsistent logics**.

33.2 Psychology and indicative conditionals

Most behavioral experiments on conditionals in the psychology of reasoning have been carried out with indicative conditionals, causal conditionals, and **counterfactual conditionals**. People readily make the **modus ponens** inference, that is, given *if A then B*, and given A, they conclude B, but only about half of participants in experiments make the **modus tollens** inference, that is, given *if A then B*, and given *not-B*, only about half of participants conclude *not-A*, the remainder say that nothing follows (Evans *et al.*, 1993). When participants are given counterfactual conditionals, they make both the **modus ponens** and the **modus tollens** inferences (Byrne, 2005).

33.3 See also

- **Material conditional**

- Counterfactual conditional
- Logical consequence
- Strict conditional

33.4 References

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Chapter 34

Informal fallacy

An **informal fallacy** is an **argument** whose stated premises may fail to adequately support its proposed conclusion.* [1]
The problem with an informal **fallacy** often stems from **reasoning** that renders the conclusion unpersuasive. In contrast to a **formal fallacy** of deduction, the error is not a flaw in logic.

34.1 Formal deductive fallacies and informal fallacies

Formal fallacies of **deductive reasoning** fail to guarantee a true conclusion follows given the truth of the premises. This will render the argument **invalid**.

Inductive fallacies are not formal in this sense. Their merit is judged in terms of rational persuasiveness, inductive strength or methodology (for example, **statistical inference**). For instance, the fallacy of **hasty generalization**, can be roughly stated as an invalid **syllogism**.

Hasty generalisation often follows a pattern such as:

X is true for A.

X is true for B.

X is true for C.

X is true for D.

Therefore, X is true for E, F, G, etc.

While never a valid logical deduction, if such an inference can be made on statistical grounds, it may nonetheless be convincing.

This is to say that informal fallacies are not necessarily incorrect, nor are they logical fallacies. However they often need the backing of **empirical proof** to become convincing.

34.2 See also

Main article: [List of fallacies](#)

- [Argumentation theory](#)
- [Argument map](#)
- [Critical thinking](#)

- Inference objection
- Inquiry
- Lemma
- Sophism

34.3 References

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- Damer, T. Edward (2009), *Attacking Faulty Reasoning: A Practical Guide to Fallacy-free Arguments* (6th ed.), Wadsworth, ISBN 978-0-495-09506-4

34.5 External links

- [Logical fallacies](#) A list of logical fallacies, explained.
- [The Fallacy Files: Informal Fallacy](#)

Chapter 35

Lauri Karttunen

Lauri Karttunen is a Consulting Professor in Linguistics at Stanford and an ACL Fellow.* [1]* [2]

35.1 Career

Karttunen received his Ph.D. in Linguistics in 1969 from Indiana University in Bloomington.* [3] At the University of Texas at Austin in the 1970s he worked mostly on semantics. He published a series of seminal papers on discourse referents, presuppositions, implicative verbs, conventional implicatures, and questions. In the 1980s Karttunen became, along with Ronald M. Kaplan, Martin Kay, and Kimmo Koskenniemi, one of the pioneers in computational linguistics on the application of finite-state transducers to phonology and morphology.* [4] Karttunen and Kenneth R. Beesley published a textbook on Finite State Morphology and a set of applications for creating morphological analyzers.* [5] Commercial versions of the finite-state technology developed by Karttunen and his colleagues at PARC and XRCE have been licensed by Xerox to many companies including SAP and Microsoft. Karttunen retired from PARC in 2011. He is currently working on Language and Natural Reasoning at CSLI.

35.2 Honors

The Association for Computational Linguistics (ACL) gives each year at its Annual Meeting a “Lifetime Achievement Award.” At the age of 66, Karttunen became so far the youngest recipient of the award at the 45th Meeting in Prague in 2007.* [6]* [7] In 2009 the Indiana Linguistics Department gave Karttunen a Distinguished Alumni Award.* [8] In 2011 ACL created an ACL Fellows Program. Karttunen was one of the seventeen selected for the founding group of ACL Fellows “whose contributions to the field have been most extraordinary.”* [9] The European META-NET organization awarded Karttunen's XFST (Xerox Finite-State Toolkit) application a META-Seal of Recognition at the 2012 Meeting in Brussels “for software products and services that actively contribute to the European Multilingual Information Society.”

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- **Presupposition and Linguistic Context.** *Theoretical Linguistics* 1 181–94, 1974. Also in *Pragmatics: A Reader*, Steven Davis (ed.), pages 406–415, Oxford University Press, 1991. Translation: Presuposición y contexto

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- **Computing with Realizational Morphology** In *Computational Linguistics and Intelligent Text Processing*, Alexander Gelbukh (ed.), Lecture Notes in Computer Science, Volume 2588, pages 205–216, Springer Verlag, Heidelberg. 2003.
- **The Insufficiency of Paper-and-Pencil Linguistics: the Case of Finnish Prosody** In *Intelligent Linguistic Architectures: Variations on themes by Ronald M. Kaplan*, Miriam Butt, Mary Dalrymple, and Tracy Holloway King (eds.), pages 287–300, CSLI Publications, Stanford, California, 2006.

35.4 References

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- [2] “Association for Computational Linguistics” .
- [3] “Indiana Linguistics Department” .
- [4] “Twenty-five Years of Finite-State Morphology” .
- [5] “Finite State Morphology” . Stanford: CSLI Publications. 2003.
- [6] “Video of ACL award ceremony” .
- [7] “Word Play” . *Computational Linguistics* 33:4 443–467. 2007.
- [8] “A Prelude to Word Play” .
- [9] “Founding group of ACL Fellows” .

35.5 External links

- Lauri Karttunen's Home Page
- Lauri Karttunen on Google Scholar

Chapter 36

Leading question

In **common law** systems that rely on **testimony** by witnesses, a **leading question** or **suggestive interrogation*** [1] is a question that suggests the particular answer or contains the information the examiner is looking to have confirmed. Their use is restricted in eliciting testimony in court, to reduce the ability of the examiner to direct or influence the evidence presented. Depending on the circumstances, leading questions can be objectionable or proper.

For example, this question is leading:

- Were you at KC's bar on the night of July 15?

It suggests what location the witness visited on the night in question. The same question in a non-leading form would be:

- Where were you on the night of July 15?

This form of question does not suggest to the witness the answer the examiner hopes to elicit. Leading questions might instead name a particular person rather than asking “who?”, indicate a specific time rather than asking “when?”, and so on.

Leading questions may often be answerable with a yes or no (though not all **yes-no questions** are leading). The propriety of leading questions generally depends on the relationship of the witness to the party conducting the examination. An examiner may generally ask leading questions of a **hostile witness** or on **cross-examination** (to elicit testimony which the witness might be reluctant to volunteer), but not on **direct examination** (to “coach” the witness to provide a particular answer).

Leading questions are distinct from *loaded questions*, which are objectionable because they contain **implicit assumptions** (such as “Have you stopped beating your wife?” indirectly asserting that the subject *has* beaten her at some point).

36.1 Propriety

36.1.1 United States

While each state has its own rules of **evidence**, many states model their rules on the **Federal Rules of Evidence**, which themselves relate closely to the common-law mode of examination. Rule 611(c) of the Federal Rules of Evidence provides that:

Leading questions should not be used on the direct examination of a witness except as may be necessary to develop the witness' testimony. Ordinarily leading questions should be permitted on cross-examination. When a party calls a hostile witness, an adverse party, or a witness identified with an adverse party, interrogation may be by leading questions.

Leading questions are the primary mode of examination of witnesses who are hostile to the examining party, and are not objectionable in that context. Examination of hostile witnesses usually takes place on cross-examination. As the rule recognizes, the examination of a “hostile witness, an adverse party, or a witness identified with an adverse party” will sometimes take place on direct examination, and leading questions are permitted.

In practice, judges will sometimes permit leading questions on **direct examination** of friendly witnesses with respect to preliminary matters that are necessary to provide background or context, and which are not in dispute; for example, a witness's employment or education. Leading questions may also be permitted on direct examination when a witness requires special handling, for example a child. However, the court must take care to be sure that the examining attorney is not *coaching* the witness through leading questions.

Although Rule 611(c) of the Federal Rules of Evidence (and comparable rules of many states) do not prohibit leading questions on **re-direct**, some states have expressly limited the use of leading questions on re-direct. As a practical matter, it rests within the trial court's discretion as to what leading questions may be asked on re-direct. Generally speaking, leading questions will be more liberally permitted on re-direct in order to establish a foundation and call the attention of the witness to specific testimony elicited on cross examination. Additionally, on re-direct, an interrogator will often ask questions which specifically seek to elicit whether an inference resulting from questioning on cross examinations is accurate. Although these type of questions will likely result in a “yes” or “no” response, they are properly understood to be direct questions, not leading questions, and are permissible.

36.2 Exceptions to the no-leading-questions rule

1. Where the witness is **hostile** to the examiner, or reluctant or unwilling to testify, in which situation the witness is unlikely to accept being “coached” by the questioner.
2. To bring out preliminary matters (name, occupation, and other pedigree information).
3. Where the memory of the witness has been exhausted and there is still information to be elicited.
4. To help the witness avoid answering on a subject that is prejudicial or improper.

36.3 See also

- **Suggestive question**, similar to leading question but manipulates the respondent to answer in a specific way.
- **Fallacy of many questions**
- **Loaded question**
- **Push poll**: push polling

36.4 References

- [1] John Bouvier (1856). “Suggestive interrogation” . *A Law Dictionary, Adapted to the Constitution and Laws of the United States*. Legal-dictionary.thefreedictionary.com. Retrieved July 22, 2011. SUGGESTIVE INTERROGATION. This phrase has been used by some writers to signify the same thing as leading question. (q.v.) 2 Benth. on Ev. b. 3, c. 3. It is used in the French law. Vide Question.

36.5 External links

- Federal Rules of Evidence - Rule 611(c)
- The Straight Dope Mailbag: “What is a hostile witness?”

Chapter 37

Loaded language

In **rhetoric**, **loaded language** (also known as **loaded terms** or **emotive language**) is wording that attempts to influence an audience by using **appeal to emotion** or **stereotypes**.^{[1][2][3]} Such wording is also known as **high-inference language** or **language persuasive techniques**.

Loaded words and phrases have strong emotional implications and involve strongly positive or negative reactions beyond their **literal meaning**. For example, the phrase *tax relief* refers literally to changes that reduce the amount of tax citizens must pay. However, use of the emotive word *relief* implies that all tax is an unreasonable burden to begin with. Examples of loaded language are “You want to go to the mall, don't you?” and “Do you really want to associate with those people?”.

Loaded terms, also called emotive or ethical words, were clearly described by Stevenson.^{[4][5][6]} He noticed that there are words that do not merely describe a possible state of affairs. “Terrorist” is not used only to refer to a person who commits specific actions with a specific intent. Words such as “torture” or “freedom” carry with them something more than a simple description of a concept or an action.^[7](Stevenson, 1944, p. 210). They have a “magnetic” effect, an imperative force, a tendency to influence the interlocutor’s decisions.^[8] They are strictly bound to moral values leading to value judgments and potentially triggering specific emotions. For this reason, they have an emotive dimension. In the modern psychological terminology, we can say that these terms carry “emotional valence”,^[9] as they presuppose and trigger a value judgment that can lead to an emotion.^[10]

The appeal to emotion is often seen as being in contrast to an appeal to **logic** and **reason**. However, emotion and reason are not necessarily always in conflict, nor is it true that an emotion cannot be a reason for an action. Authors **R. Malcolm Murray** and **Nebojsa Kujundzic** distinguish “*prima facie* reasons” from “considered reasons” when discussing this. A *prima facie* reason for, say, not eating mushrooms is that one does not like mushrooms. This is an emotive reason. However, one still may have a *considered* reason for not eating mushrooms: one might consume enough of the relevant minerals and vitamins that one could obtain from eating mushrooms from other sources. An emotion, elicited via emotive language, may form a *prima facie* reason for action, but further work is required before one can obtain a *considered* reason.^[3]

Emotive arguments and loaded language are particularly persuasive because they exploit the human weakness for acting immediately based upon an emotional response, *without* such further considered judgment. Due to such potential for emotional complication, it is generally advised to avoid loaded language in argument or speech when fairness and impartiality is one of the goals. **Anthony Weston**, for example, admonishes students and writers: “In general, avoid language whose only function is to sway the emotions”.^{[1][3]}

37.1 Examples

Politicians cultivate loaded language, and often study how to use it effectively: which words to use or avoid using to gain political advantage or disparage an opponent. Heller gives the example that it is common for a politician to advocate “investment in public services”, because it has a more favorable connotation than “**public spending**”.^[11] Contrast the extremely negative formulation of “the tax-and-spend politicians borrowing off the backs of our grandchildren” with the extremely positive formulation of “the public servants ensuring crucial investment in our essential infrastructure for the public good”, in describing exactly the same thing (“**government spending**” which is the neutral version of the phrase).

One aspect of loaded language is that loaded words and phrases occur in pairs, sometimes as **political framing** techniques by individuals with opposing agendas. Heller calls these “a Boo! version and a Hooray! version” to differentiate those with negative and positive emotional connotations. Examples include *bureaucrat* versus *public servant*, *anti-choice* versus *pro-life*, *regime* versus *government*, and *elitist* versus *expert*.* [11]

In the 1946 essay “Politics and the English Language”, George Orwell discussed the use of loaded language in political discourse.

The word *Fascism* has now no meaning except in so far as it signifies “something not desirable.” The words *democracy*, *socialism*, *freedom*, *patriotic*, *realistic*, *justice* have each of them several different meanings which cannot be reconciled with one another. In the case of a word like *democracy*, not only is there no agreed definition, but the attempt to make one is resisted from all sides. It is almost universally felt that when we call a country democratic we are praising it: consequently the defenders of every kind of regime claim that it is a democracy, and fear that they might have to stop using that word if it were tied down to any one meaning.* [12]

37.2 See also

- Persuasive definition
- Dog-whistle politics
- Loaded question
- Propaganda
- Code word (figure of speech)
- Distancing language
- Newspeak

37.3 References

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- [4] Stevenson 1937.
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- [9] Frijda & Mesquita & 2000 p.49.
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37.4 External links

Chapter 38

Loaded question

A **loaded question** or **complex question fallacy** is a **question** which contains a controversial or unjustified assumption (e.g., a presumption of guilt).^[1]

Aside from being an **informal fallacy** depending on usage, such questions may be used as a **rhetorical** tool: the question attempts to limit direct replies to be those that serve the questioner's agenda.^[2] The traditional example is the question "Have you stopped beating your wife?" Whether the respondent answers yes or no, they will admit to having a wife and having beaten her at some time in the past. Thus, these facts are *presupposed* by the question, and in this case an entrapment, because it narrows the respondent to a single answer, and the **fallacy of many questions** has been committed.^[2] The fallacy relies upon context for its effect: the fact that a question presupposes something does not in itself make the question fallacious. Only when some of these presuppositions are not necessarily agreed to by the person who is asked the question does the argument containing them become fallacious.^[2] Hence the same question may be loaded in one context, but not in the other. For example the previous question would not be loaded if it was asked during a trial in which the defendant has already admitted to beating his wife.^[2]

This fallacy should be distinguished from that of **begging the question** (not to be confused with *raising the question*),^[3] which offers a **premise** whose plausibility depends on the truth of the **proposition** asked about, and which is often an implicit restatement of the proposition.^[4]

The term "loaded question" is sometimes used to refer to **loaded language** that is phrased as a question. This type of question does not necessarily contain a fallacious presupposition, but rather this usage refers to the question having an unspoken and often emotive implication. For example, "Are you a murderer?" would be such a loaded question, as "murder" has a very negative connotation. Such a question may be asked merely to harass or upset the respondent with no intention of listening to their reply, or asked with the full expectation that the respondent will predictably deny it.

38.1 Defense

A common way out of this argument is not to answer the question (e.g. with a simple 'yes' or 'no'), but to challenge the assumption behind the question. To use an earlier example, a good response to the question "Have you stopped beating your wife?" would be "I have *never* beaten my wife".^[5] This removes the ambiguity of the expected response, therefore nullifying the tactic. However, the askers of said questions have learned to get around this tactic by accusing the one who answers of **dodging the question**. A **rhetorical question** such as "Then please explain, how could I possibly have beaten a wife that I've never had?" can be an effective antidote to this further tactic, placing the burden on the deceptive questioner either to expose their tactic or stop the line of inquiry. In many cases a short answer is important. *I neither did nor do I now* makes a good example on how to answer the question without letting the asker interrupt and misshape the response.

38.2 Historical examples

Madeleine Albright (U.S. Ambassador to the U.N.) claims to have answered a loaded question (and later regretted not challenging it instead) on *60 Minutes* on 12 May 1996. Lesley Stahl asked, regarding the effects of UN sanctions

against Iraq, “We have heard that a half million children have died. I mean, that is more children than died in Hiroshima. And, you know, is the price worth it?” Madeleine Albright: “I think that is a very hard choice, but the price, we think, the price is worth it.” * [6] She later wrote of this response:

I must have been crazy; I should have answered the question by reframing it and pointing out the inherent flaws in the premise behind it. ...As soon as I had spoken, I wished for the power to freeze time and take back those words. My reply had been a terrible mistake, hasty, clumsy, and wrong. ...I had fallen into a trap and said something that I simply did not mean. That is no one’s fault but my own.* [7]

President Bill Clinton, the moderator in a town meeting discussing the topic “Race In America”, in response to a participant argument that the issue was not affirmative action but “racial preferences” asked the participant a loaded question: “Do you favor the United States Army abolishing the affirmative-action program that produced Colin Powell? Yes or no?” * [8]

For another example, the New Zealand corporal punishment referendum, 2009 asked: “Should a smack as part of good parental correction be a criminal offence in New Zealand?” Murray Edridge, of Barnardos New Zealand, criticized the question as “loaded and ambiguous” and claimed “the question presupposes that smacking is a part of good parental correction”. * [9]

38.3 See also

- Complex question
- Entailment (pragmatics)
- False dilemma
- Gotcha journalism
- Implicature
- Leading question
- Mu (negative)
- Presupposition
- Suggestive question

38.4 References

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- [4] Carroll, Robert Todd. *The Skeptic's Dictionary*. John Wiley & Sons. p. 51. ISBN 0-471-27242-6.
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38.5 External links

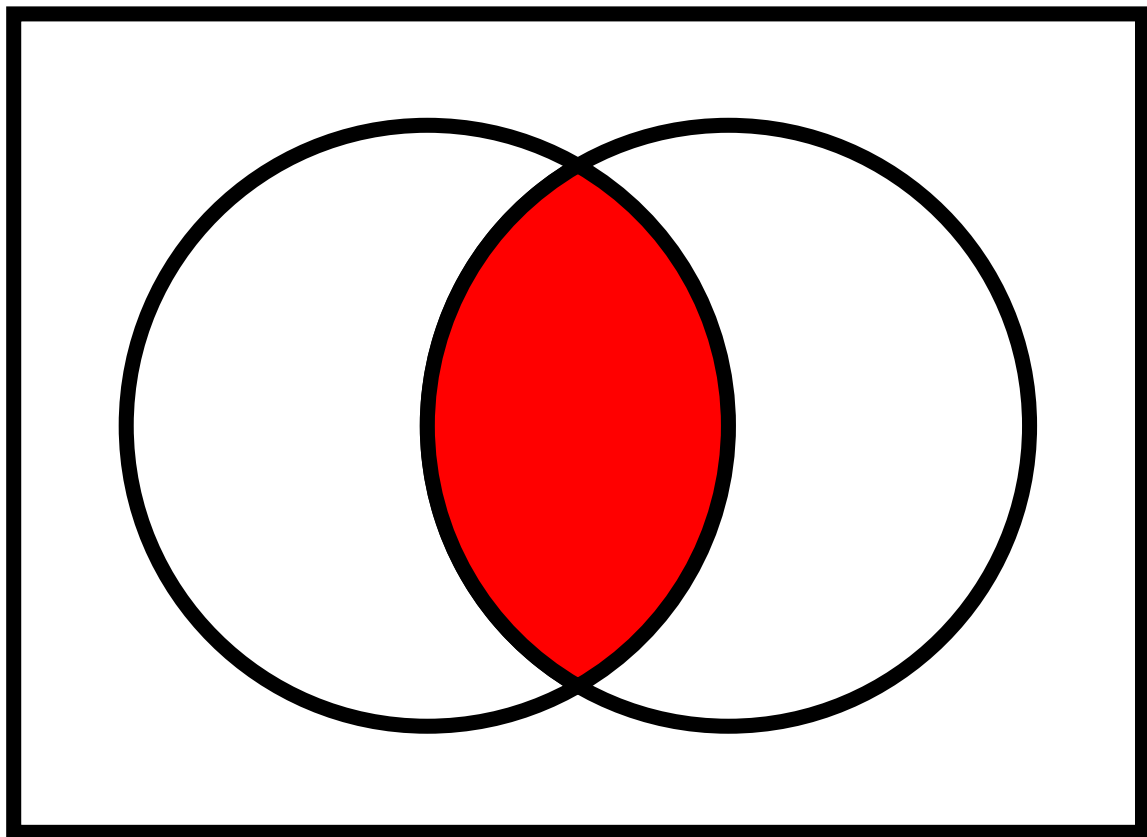
- Fallacy: Loaded Questions and Complex Claims Critical Thinking exercises. San Jose State University.
- Logical Fallacy: Loaded Question The Fallacy Files

Chapter 39

Logical conjunction

"[^](#)" redirects here. For the logic gate, see [AND gate](#). For exterior product, see [Exterior algebra](#).

In [logic](#) and [mathematics](#), **and** is the truth-functional operator of **logical conjunction**; the *and* of a set of operands is



Venn diagram of $A \wedge B$

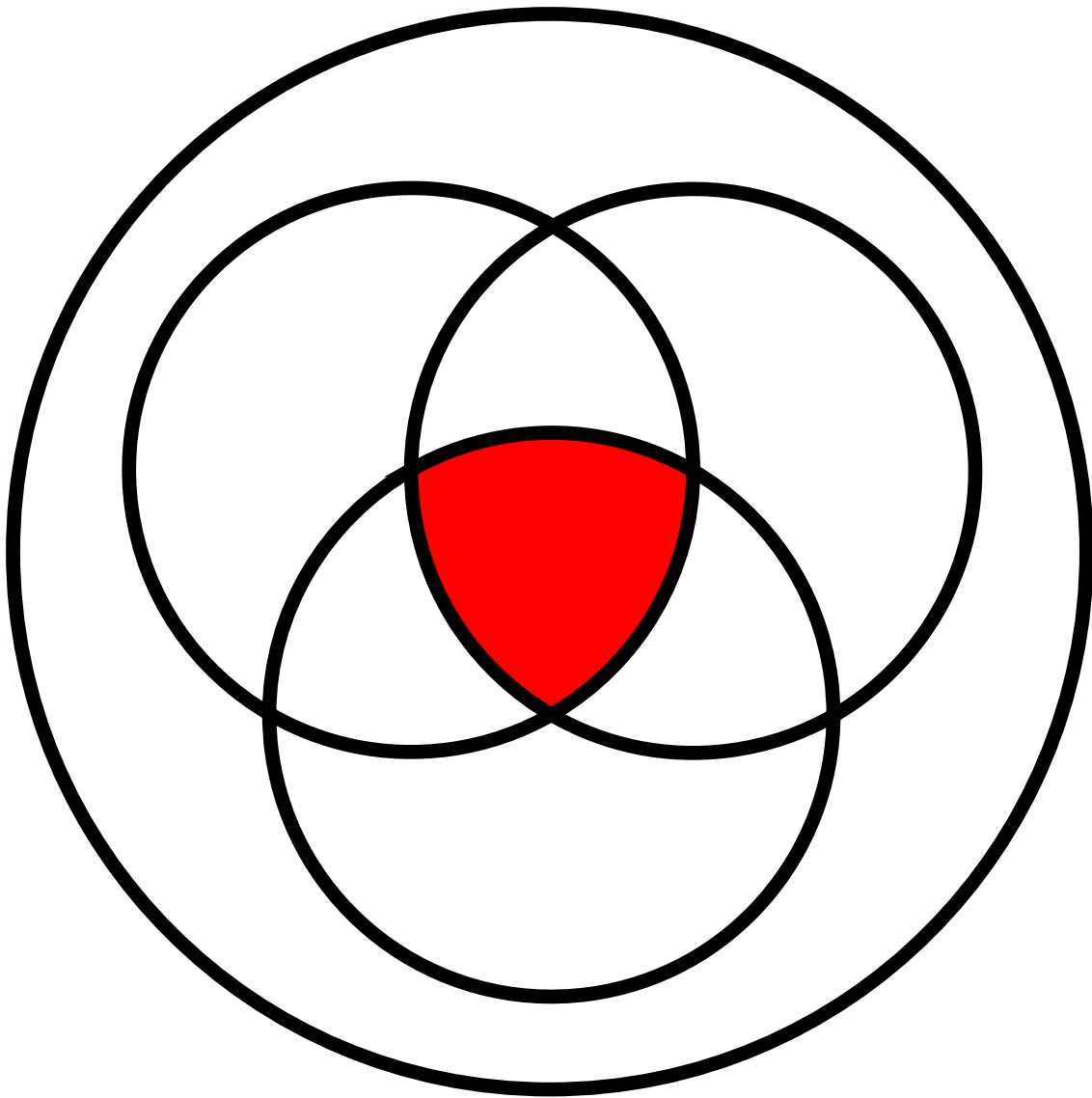
true if and only if *all* of its operands are true. The [logical connective](#) that represents this operator is typically written as $\wedge$ or $\cdot$.

"*A and B*" is true only if *A* is true and *B* is true.

An operand of a conjunction is a **conjunct**.

Related concepts in other fields are:

- In natural language, the coordinating conjunction “and”.
- In programming languages, the short-circuit and control structure.



Venn diagram of $A \cap B \cap C$

- In set theory, intersection.
- In predicate logic, universal quantification.

39.1 Notation

And is usually expressed with an infix operator: in mathematics and logic, $\wedge$; in electronics, $\cdot$; and in programming languages, **&** or **and**. In Jan Łukasiewicz's prefix notation for logic, the operator is **K**, for Polish *koniunkcja*.^[1]

39.2 Definition

Logical conjunction is an operation on two logical values, typically the values of two propositions, that produces a value of *true* if and only if both of its operands are true.

The conjunctive identity is 1, which is to say that AND-ing an expression with 1 will never change the value of the expression. In keeping with the concept of vacuous truth, when conjunction is defined as an operator or function of

$\vdash A \wedge B$

Here is an example of an argument that fits the form *conjunction introduction*:

Bob likes apples.

Bob likes oranges.

Therefore, Bob likes apples and oranges.

Conjunction elimination is another classically **valid**, **simple argument form**. Intuitively, it permits the inference from any conjunction of either element of that conjunction.

A and *B*.

Therefore, *A*.

...or alternately,

A and *B*.

Therefore, *B*.

In **logical operator** notation:

 $A \wedge B$
 $\vdash A$

...or alternately,

 $A \wedge B$
 $\vdash B$

39.4 Properties

commutativity: yes

associativity: yes

distributivity: with various operations, especially with *or*

idempotency: yes

monotonicity: yes

truth-preserving: yes

When all inputs are true, the output is true.

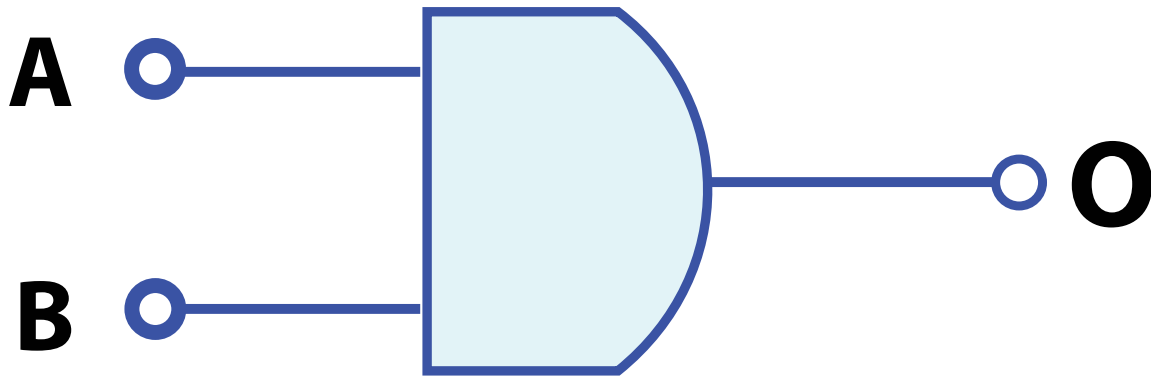
falsehood-preserving: yes

When all inputs are false, the output is false.

Walsh spectrum: (1,−1,−1,1)

Nonlinearity: 1 (the function is **bent**)

If using **binary** values for true (1) and false (0), then *logical conjunction* works exactly like normal arithmetic multiplication.



AND logic gate

39.5 Applications in computer engineering

In high-level computer programming and **digital electronics**, logical conjunction is commonly represented by an infix operator, usually as a keyword such as “AND”, an algebraic multiplication, or the ampersand symbol “&”. Many languages also provide **short-circuit** control structures corresponding to logical conjunction.

Logical conjunction is often used for bitwise operations, where 0 corresponds to false and 1 to true:

- $0 \text{ AND } 0 = 0$,
- $0 \text{ AND } 1 = 0$,
- $1 \text{ AND } 0 = 0$,
- $1 \text{ AND } 1 = 1$.

The operation can also be applied to two binary **words** viewed as **bitstrings** of equal length, by taking the bitwise AND of each pair of bits at corresponding positions. For example:

- $11000110 \text{ AND } 10100011 = 10000010$.

This can be used to select part of a bitstring using a **bit mask**. For example, $10011101 \text{ AND } 00001000 = 00001000$ extracts the fifth bit of an 8-bit bitstring.

In **computer networking**, bit masks are used to derive the network address of a **subnet** within an existing network from a given IP address, by ANDing the IP address and the **subnet mask**.

Logical conjunction “AND” is also used in **SQL** operations to form **database queries**.

The **Curry-Howard correspondence** relates logical conjunction to **product types**.

39.6 Set-theoretic correspondence

The membership of an element of an **intersection set** in **set theory** is defined in terms of a logical conjunction: $x \in A \cap B$ if and only if $(x \in A) \wedge (x \in B)$. Through this correspondence, set-theoretic intersection shares several properties with logical conjunction, such as **associativity**, **commutativity**, and **idempotence**.

39.7 Natural language

As with other notions formalized in **mathematical logic**, the logical conjunction *and* is related to, but not the same as, the **grammatical conjunction** *and* in natural languages.

English “and” has properties not captured by logical conjunction. For example, “and” sometimes implies order. For example, “They got married and had a child” in common discourse means that the marriage came before the

child. The word “and” can also imply a partition of a thing into parts, as “The American flag is red, white, and blue.” Here it is not meant that the flag is *at once* red, white, and blue, but rather that it has a part of each color.

39.8 See also

- [And-inverter graph](#)
- [AND gate](#)
- [Binary and](#)
- [Bitwise AND](#)
- [Boolean algebra \(logic\)](#)
- [Boolean algebra topics](#)
- [Boolean conjunctive query](#)
- [Boolean domain](#)
- [Boolean function](#)
- [Boolean-valued function](#)
- [Conjunction introduction](#)
- [Conjunction elimination](#)
- [De Morgan's laws](#)
- [First-order logic](#)
- [Fréchet inequalities](#)
- [Grammatical conjunction](#)
- [Logical disjunction](#)
- [Logical negation](#)
- [Logical graph](#)
- [Logical value](#)
- [Operation](#)
- [Peano-Russell notation](#)
- [Propositional calculus](#)

39.9 References

- [1] Józef Maria Bocheński (1959), *A Précis of Mathematical Logic*, translated by Otto Bird from the French and German editions, Dordrecht, North Holland: D. Reidel, *passim*.

39.10 External links

- [Hazewinkel, Michiel, ed. \(2001\), “Conjunction” , *Encyclopedia of Mathematics*, Springer, ISBN 978-1-55608-010-4](#)
- [Wolfram MathWorld: Conjunction](#)

Chapter 40

Logical connective

This article is about connectives in logical systems. For connectors in natural languages, see [discourse connective](#). For other logical symbols, see [List of logic symbols](#).

In logic, a **logical connective** (also called a **logical operator**) is a [symbol](#) or [word](#) used to connect two or more [sentences](#) (of either a [formal](#) or a [natural language](#)) in a [grammatically valid](#) way, such that the sense of the compound sentence produced depends only on the original sentences.

The most common logical connectives are **binary connectives** (also called **dyadic connectives**) which join two sentences which can be thought of as the function's [operands](#). Also commonly, [negation](#) is considered to be a **unary connective**.

Logical connectives along with [quantifiers](#) are the two main types of [logical constants](#) used in [formal systems](#) such as [propositional logic](#) and [predicate logic](#). Semantics of a logical connective is often, but not always, presented as a [truth function](#).

A logical connective is similar to but not equivalent to a [conditional operator](#). ^[1]

40.1 In language

40.1.1 Natural language

In the grammar of natural languages two sentences may be joined by a [grammatical conjunction](#) to form a *grammatically compound sentence*. Some but not all such grammatical conjunctions are [truth functions](#). For example, consider the following sentences:

A: Jack went up the hill.

B: Jill went up the hill.

C: Jack went up the hill *and* Jill went up the hill.

D: Jack went up the hill *so* Jill went up the hill.

The words *and* and *so* are *grammatical* conjunctions joining the sentences (A) and (B) to form the compound sentences (C) and (D). The *and* in (C) is a *logical* connective, since the truth of (C) is completely determined by (A) and (B): it would make no sense to affirm (A) and (B) but deny (C). However, *so* in (D) is not a logical connective, since it would be quite reasonable to affirm (A) and (B) but deny (D): perhaps, after all, Jill went up the hill to fetch a pail of water, not because Jack had gone up the hill at all.

Various English words and word pairs express logical connectives, and some of them are synonymous. Examples (with the name of the relationship in parentheses) are:

- “and” ([conjunction](#))
- “and then” ([conjunction](#))

- “and then within” (conjunction)
- “or” (disjunction)
- “either...or” (exclusive disjunction)
- “implies” (implication)
- “if...then” (implication)
- “if and only if” (equivalence)
- “only if” (implication)
- “just in case” (biconditional)
- “but” (conjunction)
- “however” (conjunction)
- “not both” (alternative denial)
- “neither...nor” (joint denial)

The word “not” (negation) and the phrases “it is false that” (negation) and “it is not the case that” (negation) also express a logical connective – even though they are applied to a single statement, and do not connect two statements.

40.1.2 Formal languages

In formal languages, truth functions are represented by unambiguous symbols. These symbols are called “logical connectives”, “logical operators”, “propositional operators”, or, in classical logic, “truth-functional connectives”. See *well-formed formula* for the rules which allow new well-formed formulas to be constructed by joining other well-formed formulas using truth-functional connectives.

Logical connectives can be used to link more than two statements, so one can speak about “*n*-ary logical connective”.

40.2 Common logical connectives

40.2.1 List of common logical connectives

Commonly used logical connectives include

- Negation (not): $\neg$, N (prefix), $\sim$
- Conjunction (and): $\wedge$, K (prefix), $\&$, $\cdot$
- Disjunction (or): $\vee$, A (prefix)
- Material implication (if...then): $\rightarrow$, C (prefix), $\Rightarrow$, $\supset$
- Biconditional (if and only if): $\leftrightarrow$, E (prefix), $\equiv$, $=$

Alternative names for biconditional are “iff”, “xnor” and “bi-implication”.

For example, the meaning of the statements *it is raining* and *I am indoors* is transformed when the two are combined with logical connectives:

- It is **not** raining ($\neg P$)
- It is raining **and** I am indoors ($P \wedge Q$)

- It is raining **or** I am indoors ($P \vee Q$)
- **If** it is raining, **then** I am indoors ($P \rightarrow Q$)
- **If** I am indoors, **then** it is raining ($Q \rightarrow P$)
- I am indoors **if and only if** it is raining ($P \leftrightarrow Q$)

For statement $P = \text{It is raining}$ and $Q = \text{I am indoors}$.

It is also common to consider the *always true* formula and the *always false* formula to be connective:

- **True** formula ($\top$, 1, $\vee$ [prefix], or T)
- **False** formula ($\perp$, 0, $\bigwedge$ [prefix], or F)

40.2.2 History of notations

- Negation: the symbol $\neg$ appeared in Heyting in 1929.*[2]*[3] (compare to Frege's symbol $\neg$ in his *Begriffsschrift*); the symbol $\sim$ appeared in Russell in 1908;*[4] an alternative notation is to add an horizontal line on top of the formula, as in $\overline{P}$; another alternative notation is to use a **prime symbol** as in P' .
- Conjunction: the symbol $\wedge$ appeared in Heyting in 1929*[2] (compare to Peano's use of the set-theoretic notation of **intersection** $\cap$ *[5]); $\&$ appeared at least in Schönfinkel in 1924;*[6] . comes from Boole's interpretation of logic as an **elementary algebra**.
- Disjunction: the symbol $\vee$ appeared in Russell in 1908*[4] (compare to Peano's use of the set-theoretic notation of **union** $\cup$); the symbol $+$ is also used, in spite of the ambiguity coming from the fact that the $+$ of ordinary **elementary algebra** is an **exclusive or** when interpreted logically in a two-element **ring**; punctually in the history a $+$ together with a dot in the lower right corner has been used by Peirce,*[7]
- Implication: the symbol $\rightarrow$ can be seen in Hilbert in 1917;*[8] $\supset$ was used by Russell in 1908*[4] (compare to Peano's inverted C notation); $\Rightarrow$ was used in Vax.*[9]
- Biconditional: the symbol $\equiv$ was used at least by Russell in 1908;*[4] $\leftrightarrow$ was used at least by Tarski in 1940;*[10] $\Leftrightarrow$ was used in Vax; other symbols appeared punctually in the history such as $\supset\subset$ in Gentzen,*[11] $\sim$ in Schönfinkel*[6] or $\subset\supset$ in Chazal.*[12]
- True: the symbol 1 comes from Boole's interpretation of logic as an **elementary algebra** over the two-element **Boolean algebra**; other notations include $\bigwedge$ to be found in Peano.
- False: the symbol 0 comes also from Boole's interpretation of logic as a ring; other notations include $\bigvee$ to be found in Peano.

Some authors used letters for connectives at some time of the history: **u.** for conjunction (German's "und" for "and") and **o.** for disjunction (German's "oder" for "or") in earlier works by Hilbert (1904); **Np** for negation, **Kpq** for conjunction, **Apq** for disjunction, **Cpq** for implication, **Epq** for biconditional in Łukasiewicz (1929);*[13] cf. **Polish notation**.

40.2.3 Redundancy

Such logical connective as **converse implication** $\leftarrow$ is actually the same as **material conditional** with swapped arguments, so the symbol for converse implication is redundant. In some logical calculi (notably, in **classical logic**) certain essentially different compound statements are **logically equivalent**. A less trivial example of a redundancy is the classical equivalence between $\neg P \vee Q$ and $P \rightarrow Q$. Therefore, a classical-based logical system does not need the conditional operator " $\rightarrow$ " if " $\neg$ " (not) and " $\vee$ " (or) are already in use, or may use the " $\rightarrow$ " only as a **syntactic sugar** for a compound having one negation and one disjunction.

There are sixteen **Boolean functions** associating the input truth values P and Q with four-digit binary outputs. These correspond to possible choices of binary logical connectives for **classical logic**. Different implementation of classical logic can choose different **functionally complete** subsets of connectives.

One approach is to choose a *minimal* set, and define other connectives by some logical form, like in the example with material conditional above. The following are the minimal functionally complete sets of operators in classical logic whose arities do not exceed 2:

One element $\{\uparrow\}, \{\downarrow\}$.

Two elements $\{\vee, \neg\}, \{\wedge, \neg\}, \{\rightarrow, \neg\}, \{\leftarrow, \neg\}, \{\rightarrow, \perp\}, \{\leftarrow, \perp\}, \{\rightarrow, \leftrightarrow\}, \{\leftarrow, \leftrightarrow\}, \{\rightarrow, \nrightarrow\}, \{\rightarrow, \Leftarrow\}, \{\leftarrow, \nrightarrow\}, \{\leftarrow, \Leftarrow\}, \{\rightarrow, \neg\}, \{\leftarrow, \neg\}, \{\rightarrow, \top\}, \{\leftarrow, \top\}, \{\rightarrow, \leftrightarrow\}, \{\leftarrow, \leftrightarrow\}$.

Three elements $\{\vee, \leftrightarrow, \perp\}, \{\vee, \leftrightarrow, \leftrightarrow\}, \{\vee, \leftrightarrow, \top\}, \{\wedge, \leftrightarrow, \perp\}, \{\wedge, \leftrightarrow, \leftrightarrow\}, \{\wedge, \leftrightarrow, \top\}$.

See more details about functional completeness in classical logic at [Functional completeness in truth function](#).

Another approach is to use on equal rights connectives of a certain convenient and functionally complete, but *not minimal* set. This approach requires more propositional [axioms](#) and each equivalence between logical forms must be either an axiom or provable as a theorem.

But [intuitionistic logic](#) has the situation more complicated. Of its five connectives $\{\wedge, \vee, \rightarrow, \neg, \perp\}$ only negation $\neg$ has to be reduced to other connectives (see [details](#)). Neither of conjunction, disjunction and material conditional has an equivalent form constructed of other four logical connectives.

40.3 Properties

Some logical connectives possess properties which may be expressed in the theorems containing the connective. Some of those properties that a logical connective may have are:

- **Associativity:** Within an expression containing two or more of the same associative connectives in a row, the order of the operations does not matter as long as the sequence of the operands is not changed.
- **Commutativity:** The operands of the connective may be swapped preserving logical equivalence to the original expression.
- **Distributivity:** A connective denoted by $\cdot$ distributes over another connective denoted by $+$, if $a \cdot (b + c) = (a \cdot b) + (a \cdot c)$ for all operands a, b, c .
- **Idempotence:** Whenever the operands of the operation are the same, the compound is logically equivalent to the operand.
- **Absorption:** A pair of connectives $\wedge, \vee$ satisfies the absorption law if $a \wedge (a \vee b) = a$ for all operands a, b .
- **Monotonicity:** If $f(a_1, \dots, a_n) \leq f(b_1, \dots, b_n)$ for all $a_1, \dots, a_n, b_1, \dots, b_n \in \{0, 1\}$ such that $a_1 \leq b_1, a_2 \leq b_2, \dots, a_n \leq b_n$. E.g., $\vee, \wedge, \top, \perp$.
- **Affinity:** Each variable always makes a difference in the truth-value of the operation or it never makes a difference. E.g., $\neg, \leftrightarrow, \leftrightarrow, \top, \perp$.
- **Duality:** To read the truth-value assignments for the operation from top to bottom on its [truth table](#) is the same as taking the complement of reading the table of the same or another connective from bottom to top. Without resorting to truth tables it may be formulated as $\tilde{g}(\neg a_1, \dots, \neg a_n) = \neg g(a_1, \dots, a_n)$. E.g., $\neg$.
- **Truth-preserving:** The compound all those argument are tautologies is a tautology itself. E.g., $\vee, \wedge, \top, \rightarrow, \leftrightarrow, \subset$. (see [validity](#))
- **Falsehood-preserving:** The compound all those argument are [contradictions](#) is a contradiction itself. E.g., $\vee, \wedge, \leftrightarrow, \perp, \not\subset, \not\supset$. (see [validity](#))
- **Involutivity** (for unary connectives): $f(f(a)) = a$. E.g. negation in classical logic.

For classical and intuitionistic logic, the "=" symbol means that corresponding implications " $\dots \rightarrow \dots$ " and " $\dots \leftarrow \dots$ " for logical compounds can be both proved as theorems, and the " $\leq$ " symbol means that " $\dots \rightarrow \dots$ " for logical compounds is a consequence of corresponding " $\dots \rightarrow \dots$ " connectives for propositional variables. Some [many-valued logics](#) may have incompatible definitions of equivalence and order (entailment).

Both conjunction and disjunction are associative, commutative and idempotent in classical logic, most varieties of many-valued logic and intuitionistic logic. The same is true about distributivity of conjunction over disjunction and disjunction over conjunction, as well as for the absorption law.

In classical logic and some varieties of many-valued logic, conjunction and disjunction are dual, and negation is self-dual, the latter is also self-dual in intuitionistic logic.

40.4 Order of precedence

As a way of reducing the number of necessary parentheses, one may introduce **precedence rules**: $\neg$ has higher precedence than $\wedge$, $\wedge$ higher than $\vee$, and $\vee$ higher than $\rightarrow$. So for example, $P \vee Q \wedge \neg R \rightarrow S$ is short for $(P \vee (Q \wedge (\neg R))) \rightarrow S$.

Here is a table that shows a commonly used precedence of logical operators.*[14]

However not all authors use the same order; for instance, an ordering in which disjunction is lower precedence than implication or bi-implication has also been used.*[15] Sometimes precedence between conjunction and disjunction is unspecified requiring to provide it explicitly in given formula with parentheses. The order of precedence determines which connective is the “main connective” when interpreting a non-atomic formula.

40.5 Computer science

A truth-functional approach to logical operators is implemented as **logic gates** in **digital circuits**. Practically all digital circuits (the major exception is **DRAM**) are built up from **NAND**, **NOR**, **NOT**, and **transmission gates**; see more details in **Truth function in computer science**. Logical operators over **bit vectors** (corresponding to finite **Boolean algebras**) are **bitwise operations**.

But not every usage of a logical connective in **computer programming** has a Boolean semantic. For example, **lazy evaluation** is sometimes implemented for $P \wedge Q$ and $P \vee Q$, so these connectives are not commutative if some of expressions P , Q has **side effects**. Also, a **conditional**, which in some sense corresponds to the **material conditional** connective, is essentially non-Boolean because for if (P) then Q ; the consequent Q is not executed if the **antecedent** P is false (although a compound as a whole is successful $\approx$ “true” in such case). This is closer to intuitionist and **constructivist** views on the material conditional, rather than to classical logic's ones.

40.6 See also

40.7 Notes

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- [2] Heyting (1929) *Die formalen Regeln der intuitionistischen Logik*.
- [3] Denis Roegel (2002), *Petit panorama des notations logiques du 20e siècle* (see chart on page 2).
- [4] Russell (1908) *Mathematical logic as based on the theory of types* (American Journal of Mathematics 30, p222–262, also in From Frege to Gödel edited by van Heijenoort).
- [5] Peano (1889) *Arithmetices principia, nova methodo exposita*.
- [6] Schönfinkel (1924) *Über die Bausteine der mathematischen Logik*, translated as *On the building blocks of mathematical logic* in From Frege to Gödel edited by van Heijenoort.
- [7] Peirce (1867) *On an improvement in Boole's calculus of logic*.
- [8] Hilbert (1917/1918) *Prinzipien der Mathematik* (Bernays' course notes).

- [9] Vax (1982) *Lexique logique*, Presses Universitaires de France.
- [10] Tarski (1940) *Introduction to logic and to the methodology of deductive sciences*.
- [11] Gentzen (1934) *Untersuchungen über das logische Schließen*.
- [12] Chazal (1996) : *Éléments de logique formelle*.
- [13] See Roegel
- [14] O'Donnell, John; Hall, Cordelia; Page, Rex (2007), *Discrete Mathematics Using a Computer*, Springer, p. 120, ISBN 9781846285981.
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40.10 External links

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Chapter 41

Logical consequence

“Entailment” redirects here. For other uses, see [Entail \(disambiguation\)](#).

“Therefore” redirects here. For the therefore symbol ($\therefore$), see [Therefore sign](#).

“Logical implication” redirects here. For the binary connective, see [Material conditional](#).

Logical consequence (also **entailment**) is one of the most fundamental [concepts](#) in [logic](#). It is the relationship between [statements](#) that holds true when one logically “follows from” one or more others. A [valid logical argument](#) is one in which the [conclusions](#) follow from its [premises](#), and its conclusions are consequences of its premises. The [philosophical analysis](#) of logical consequence involves asking, 'in what sense does a conclusion follow from its premises?' and 'what does it mean for a conclusion to be a consequence of premises?'^[1] All of [philosophical logic](#) can be thought of as providing accounts of the nature of logical consequence, as well as [logical truth](#).^[2]

Logical consequence is taken to be both [necessary](#) and [formal](#) with examples explicated using [models](#) and [proofs](#).^[1] A sentence is said to be a logical consequence of a set of sentences, for a given [language](#), if and only if, using logic alone (i.e. without regard to any interpretations of the sentences) the sentence must be true if every sentence in the set were to be true.^[3]

Logicians make precise accounts of logical consequence with respect to a given [language](#) $\mathcal{L}$ by constructing a [deductive system](#) for $\mathcal{L}$, or by formalizing the [intended semantics](#) for $\mathcal{L}$. [Alfred Tarski](#) highlighted three salient features for which any adequate characterization of logical consequence needs to account: 1) that the logical consequence relation relies on the [logical form](#) of the sentences involved, 2) that the relation is [a priori](#), i.e. it can be determined whether or not it holds without regard to [sense experience](#), and 3) that the relation has a [modal](#) component.^[3]

41.1 Formal accounts of logical consequence

The most widely prevailing view on how to best account for logical consequence is to appeal to formality. This is to say that whether statements follow from one another logically depends on the structure or [logical form](#) of the statements without regard to the contents of that form.

Syntactic accounts of logical consequence rely on [schemes](#) using [inference rules](#). For instance, we can express the logical form of a valid argument as “All A are B . All C are A . Therefore, All C are B .” This argument is formally valid, because every [instance](#) of arguments constructed using this scheme are valid.

This is in contrast to an argument like “Fred is Mike's brother's son. Therefore Fred is Mike's nephew.” Since this argument depends on the meanings of the words “brother”, “son”, and “nephew”, the statement “Fred is Mike's nephew” is a so-called [material consequence](#) of “Fred is Mike's brother's son,” not a formal consequence. A formal consequence must be true *in all cases*, however this is an incomplete definition of formal consequence, since even the argument “ P is Q 's brother's son, therefore P is Q 's nephew” is valid in all cases, but is not a *formal* argument.^[1]

41.2 A priori property of logical consequence

If you know that Q follows logically from P no information about the possible interpretations of P or Q will affect that knowledge. Our knowledge that Q is a logical consequence of P cannot be influenced by **empirical knowledge**.^[1] Deductively valid arguments can be known to be so without recourse to experience, so they must be knowable a priori.^[1] However, formality alone does not guarantee that logical consequence is not influenced by empirical knowledge. So the a priori property of logical consequence is considered to be independent of formality.^[1]

41.3 Proofs and models

The two prevailing techniques for providing accounts of logical consequence involve expressing the concept in terms of *proofs* and via *models*. The study of the syntactic consequence (of a logic) is called (its) **proof theory** whereas the study of (its) semantic consequence is called (its) **model theory**.^[4]

41.3.1 Syntactic consequence

See also: $\therefore$ and $\vdash$

A formula A is a **syntactic consequence** ^[5] ^[6] ^[7] ^[8] within some **formal system** $\mathcal{FS}$ of a set Γ of formulas if there is a **formal proof** in $\mathcal{FS}$ of A from the set Γ .

$$\Gamma \vdash_{\mathcal{FS}} A$$

Syntactic consequence does not depend on any interpretation of the formal system.^[9]

41.3.2 Semantic consequence

See also: $\models$

A formula A is a **semantic consequence** within some formal system $\mathcal{FS}$ of a set of statements Γ

$$\Gamma \models_{\mathcal{FS}} A,$$

if and only if there is no model $\mathcal{I}$ in which all members of Γ are true and A is false.^[10] Or, in other words, the set of the interpretations that make all members of Γ true is a subset of the set of the interpretations that make A true.

41.4 Modal accounts

Modal accounts of logical consequence are variations on the following basic idea:

$\Gamma \vdash A$ is true if and only if it is *necessary* that if all of the elements of Γ are true, then A is true.

Alternatively (and, most would say, equivalently):

$\Gamma \vdash A$ is true if and only if it is *impossible* for all of the elements of Γ to be true and A false.

Such accounts are called “modal” because they appeal to the modal notions of **logical necessity** and **logical possibility**. ‘It is necessary that’ is often expressed as a **universal quantifier** over **possible worlds**, so that the accounts above translate as:

$\Gamma \vdash A$ is true if and only if there is no possible world at which all of the elements of Γ are true and A is false (untrue).

Consider the modal account in terms of the argument given as an example above:

All frogs are green.

Kermit is a frog.

Therefore, Kermit is green.

The conclusion is a logical consequence of the premises because we can't imagine a possible world where (a) all frogs are green; (b) Kermit is a frog; and (c) Kermit is not green.

41.4.1 Modal-formal accounts

Modal-formal accounts of logical consequence combine the modal and formal accounts above, yielding variations on the following basic idea:

$\Gamma \vdash A$ if and only if it is impossible for an argument with the same logical form as Γ / A to have true premises and a false conclusion.

41.4.2 Warrant-based accounts

The accounts considered above are all “truth-preservational,” in that they all assume that the characteristic feature of a good inference is that it never allows one to move from true premises to an untrue conclusion. As an alternative, some have proposed “warrant-preservational” accounts, according to which the characteristic feature of a good inference is that it never allows one to move from justifiably assertible premises to a conclusion that is not justifiably assertible. This is (roughly) the account favored by intuitionists such as Michael Dummett.

41.4.3 Non-monotonic logical consequence

Main article: [Non-monotonic logic](#)

The accounts discussed above all yield **monotonic** consequence relations, i.e. ones such that if A is a consequence of Γ , then A is a consequence of any superset of Γ . It is also possible to specify non-monotonic consequence relations to capture the idea that, e.g., ‘Tweety can fly’ is a logical consequence of

{Birds can typically fly, Tweety is a bird}

but not of

{Birds can typically fly, Tweety is a bird, Tweety is a penguin}.

For more on this, see [Belief revision](#) and [Non-monotonic inference relation](#).

41.5 See also

41.6 Notes

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41.8 External links

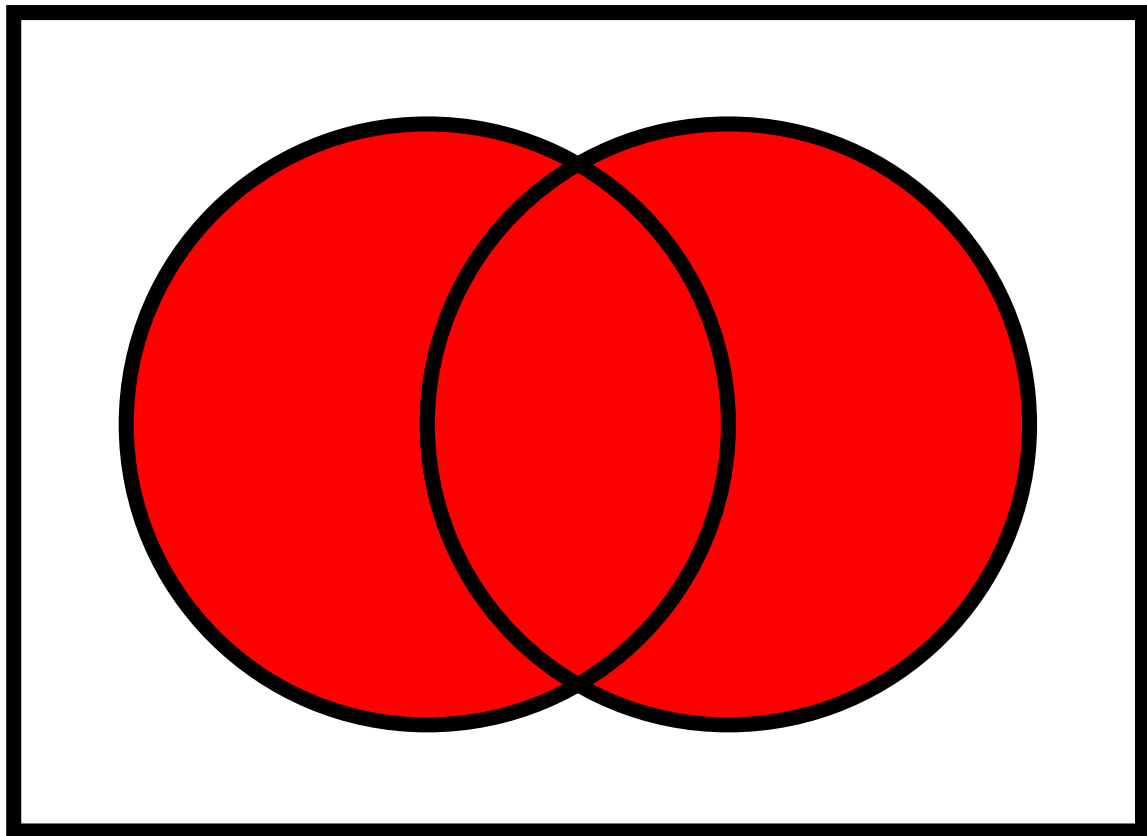
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- Logical consequence at PhilPapers
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Chapter 42

Logical disjunction

“Disjunction” redirects here. For the logic gate, see [OR gate](#). For separation of chromosomes, see [Meiosis](#). For disjunctions in distribution, see [Disjunct distribution](#).

In logic and mathematics, **or** is the truth-functional operator of **(inclusive) disjunction**, also known as **alternation**;



Venn diagram of $A \vee B$

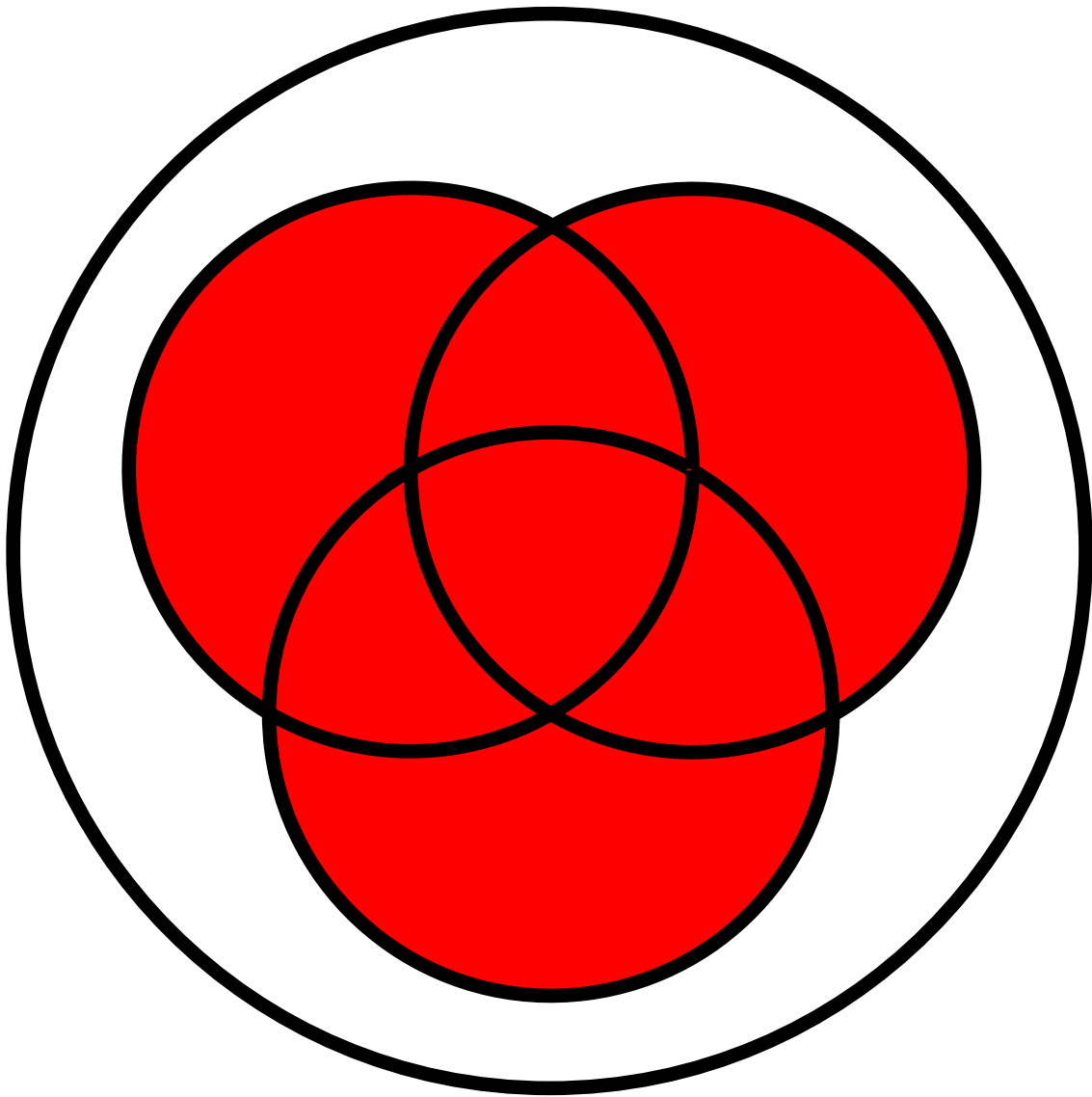
the *or* of a set of operands is true if and only if *one or more* of its operands is true. The logical connective that represents this operator is typically written as $\vee$ or $+$.

"A or B" is true if A is true, or if B is true, or if both A and B are true.

In logic, *or* by itself means the *inclusive or*, distinguished from an *exclusive or*, which is false when both of its arguments are true, while an “or” is true in that case.

An operand of a disjunction is called a **disjunct**.

Related concepts in other fields are:



Venn diagram of $A \vee B \vee C$

- In natural language, the coordinating conjunction “or” .
- In programming languages, the short-circuit or control structure.
- In set theory, union.
- In predicate logic, existential quantification.

42.1 Notation

Or is usually expressed with an infix operator: in mathematics and logic, $\vee$; in electronics, $+$; and in programming languages, `|` or `or`. In Jan Łukasiewicz's prefix notation for logic, the operator is **A**, for Polish *alternatywa*.^[1]

42.2 Definition

Logical disjunction is an operation on two logical values, typically the values of two propositions, that has a value of *false* if and only if both of its operands are false. More generally, a disjunction is a logical formula that can have

one or more **literals** separated only by ORs. A single literal is often considered to be a degenerate disjunction.

The disjunctive **identity** is false, which is to say that the *or* of an expression with false has the same value as the original expression. In keeping with the concept of **vacuous truth**, when disjunction is defined as an operator or function of arbitrary **arity**, the empty disjunction (OR-ing over an empty set of operands) is generally defined as false.

42.2.1 Truth table

()		A	B	AB	C	AC	BC	ABC	D	AD	BD	ABD	BCD	ACD	BCD	ABCD
(A)		A	B	AB	C	AC	BC	ABC	D	A	B	AB	BC	AC	BC	ABCD
(B)		A	B	B	C	AC	B	B	D	A	B	B	BC	AC	B	B
(AB)		A	B	AB	C	AC	B	AB	D	A	B	AB	BC	AC	B	AB
(C)		A	B	AB	C	C	C	C	D	A	B	AB	C	C	C	C
(A C)		A	B	AB	C	AC	C	AC	D	A	B	AB	C	AC	C	AC
(BC)		A	B	B	C	AC	BC	BC	D	A	B	B	C	AC	BC	BC
(ABC)		A	B	AB	C	AC	BC	ABC	D	A	B	AB	C	AC	BC	ABC
(D)		A	B	AB	C	AC	BC	ABC	D	D	D	D	D	D	D	D
(A D)		A	B	AB	C	AC	BC	ABC	D	A	B	AB	D	A	B	AB
(B D)		A	B	B	C	AC	B	B	D	A	B	B	D	A	B	B
(AB D)		A	B	AB	C	AC	B	AB	D	A	B	AB	D	A	B	AB
(CD)		A	B	AB	C	C	C	C	D	D	D	D	CD	CD	CD	CD
(A CD)		A	B	AB	C	AC	C	AC	D	A	B	AB	CD	AC	C	AC
(BCD)		A	B	B	C	AC	BC	BC	D	D	B	B	CD	AC	BC	BC
(ABCD)		A	B	AB	C	AC	BC	ABC	D	A	B	AB	CD	AC	BC	ABCD

Disjunctions of the arguments on the left — The false bits form a Sierpinski triangle.

The truth table of $A \vee B$:

42.3 Properties

- **Commutativity**
- **Associativity**
- **Distributivity** with various operations, especially with *and*
- **Idempotency**
- **Monotonicity**
- **Truth-preserving validity**

When all inputs are true, the output is true.

- **False-preserving validity**

When all inputs are false, the output is false.

- **Walsh spectrum:** $(3, -1, -1, -1)$
- **Nonlinearity:** 1 (the function is bent)

If using **binary** values for true (1) and false (0), then *logical disjunction* works almost like **binary addition**. The only difference is that $1 \vee 1 = 1$, while $1 + 1 = 10$.

42.4 Symbol

The mathematical symbol for logical disjunction varies in the literature. In addition to the word “or”, and the formula “ $A \vee B$ ”, the symbol “ $\vee$ ”, deriving from the Latin word *vel* (“either”, “or”) is commonly used for disjunction. For example: “ $A \vee B$ ” is read as “ A or B ”. Such a disjunction is false if both A and B are false. In all other cases it is true.

All of the following are disjunctions:

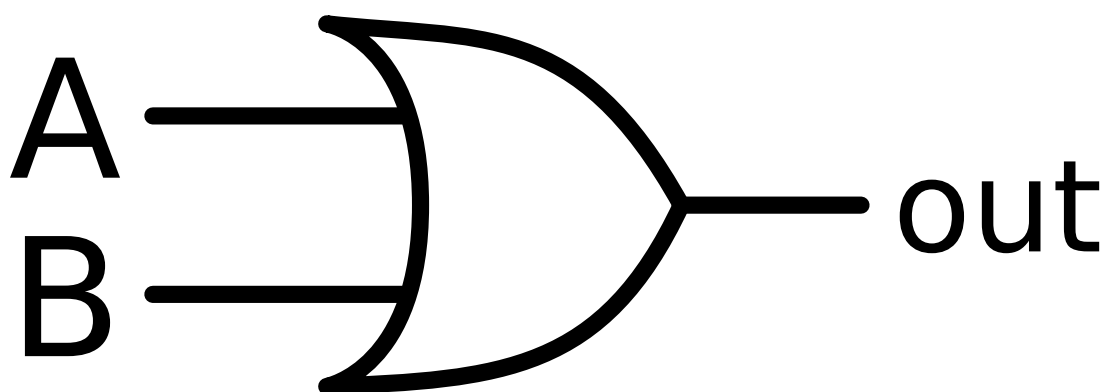
$$A \vee B$$

$$\neg A \vee B$$

$$A \vee \neg B \vee \neg C \vee D \vee \neg E.$$

The corresponding operation in set theory is the **set-theoretic union**.

42.5 Applications in computer science



OR logic gate

Operators corresponding to logical disjunction exist in most programming languages.

42.5.1 Bitwise operation

Disjunction is often used for bitwise operations. Examples:

- $0 \text{ or } 0 = 0$
- $0 \text{ or } 1 = 1$
- $1 \text{ or } 0 = 1$
- $1 \text{ or } 1 = 1$
- $1010 \text{ or } 1100 = 1110$

The or operator can be used to set bits in a **bit field** to 1, by or-ing the field with a constant field with the relevant bits set to 1. For example, $x = x \mid 0b00000001$ will force the final bit to 1 while leaving other bits unchanged.

42.5.2 Logical operation

Many languages distinguish between bitwise and logical disjunction by providing two distinct operators; in languages following C, bitwise disjunction is performed with the single pipe (`|`) and logical disjunction with the double pipe (`||`) operators.

Logical disjunction is usually **short-circuited**; that is, if the first (left) operand evaluates to true then the second (right) operand is not evaluated. The logical disjunction operator thus usually constitutes a **sequence point**.

In a parallel (concurrent) language, it is possible to short-circuit both sides: they are evaluated in parallel, and if one terminates with value true, the other is interrupted. This operator is thus called the **parallel or**.

Although in most languages the type of a logical disjunction expression is boolean and thus can only have the value true or false, in some (such as **Python** and **JavaScript**) the logical disjunction operator returns one of its operands: the first operand if it evaluates to a true value, and the second operand otherwise.

42.5.3 Constructive disjunction

The **Curry–Howard correspondence** relates a **constructivist** form of disjunction to **tagged union** types.

42.6 Union

The **membership** of an element of an **union set** in **set theory** is defined in terms of a logical disjunction: $x \in A \cup B$ if and only if $(x \in A) \vee (x \in B)$. Because of this, logical disjunction satisfies many of the same identities as set-theoretic union, such as associativity, commutativity, distributivity, and **de Morgan's laws**.

42.7 Natural language

As with other notions formalized in **mathematical logic**, the meaning of the natural-language **coordinating conjunction** *or* is closely related to, but different from the logical *or*. For example, “Please ring me or send an email” likely means “do one or the other, but not both”. On the other hand, “Her grades are so good that she's either very bright or studies hard” does not exclude the possibility of both. In other words, in ordinary language “or” can mean the inclusive or exclusive or.

42.8 See also

42.9 Notes

- **George Boole**, closely following analogy with ordinary mathematics, premised, as a necessary condition to the definition of “ $x + y$ ”, that x and y were mutually exclusive. **Jevons**, and practically all mathematical logicians after him, advocated, on various grounds, the definition of “logical addition” in a form which does not necessitate mutual exclusiveness.

42.10 External links

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Chapter 43

Logical truth

Logical truth is one of the most fundamental concepts in logic, and there are different theories on its nature. A logical truth is a statement which is true, and remains true under all reinterpretations of its components other than its logical constants. It is a type of analytic statement. All of philosophical logic can be thought of as providing accounts of the nature of logical truth, as well as logical consequence. * [1]

Logical truths (including tautologies) are truths which are considered to be necessarily true. This is to say that they are considered to be such that they could not be untrue and no situation could arise which would cause us to reject a logical truth. However, it is not universally agreed that there are any statements which are necessarily true.

A logical truth is considered by some philosophers to be a statement which is true in all possible worlds. This is contrasted with facts (which may also be referred to as contingent claims or synthetic claims) which are true in this world, as it has historically unfolded, but which is not true in at least one possible world, as it might have unfolded. The proposition “If p and q, then p” and the proposition “All married people are married” are logical truths because they are true due to their inherent structure and not because of any facts of the world. Later, with the rise of formal logic a logical truth was considered to be a statement which is true under all possible interpretations.

The existence of logical truths has been put forward by rationalist philosophers as an objection to empiricism because they hold that it is impossible to account for our knowledge of logical truths on empiricist grounds. Empiricists commonly respond to this objection by arguing that logical truths (which they usually deem to be mere tautologies), are analytic and thus do not purport to describe the world.

43.1 Logical truths and analytic truths

Main article: [Analytic–synthetic distinction](#)

Logical truths, being analytic statements, do not contain any information about any matters of fact. Other than logical truths, there is also a second class of analytic statements, typified by “No bachelor is married.” The characteristic of such a statement is that it can be turned into a logical truth by substituting synonyms for synonyms *salva veritate*. “No bachelor is married.” can be turned into “No unmarried man is married.” by substituting 'unmarried man' for its synonym 'bachelor.'

In his essay, *Two Dogmas of Empiricism*, the philosopher W.V.O. Quine called into question the distinction between analytic and synthetic statements. It was this second class of analytic statements that caused him to note that the concept of analyticity itself stands in need of clarification, because it seems to depend on the concept of synonymy, which stands in need of clarification. In his conclusion, Quine rejects that logical truths are necessary truths. Instead he posits that the truth-value of any statement can be changed, including logical truths, given a re-evaluation of the truth-values of every other statement in one's complete theory.

43.2 Truth values and tautologies

Main article: [Tautology \(logic\)](#)

Considering different **interpretations** of the same statement leads to the notion of **truth value**. Simplest approach to truth values means that the statement may be “true” in one case, but “false” in another. In one sense of the term “tautology”, it is any type of **formula** or **proposition** which turns out to be true under any possible interpretation of its terms (may also be called a **valuation** or assignment depending upon the context). This is synonymous to logical truth.

However, the term “tautology” is also commonly used to refer to what could more specifically be called **truth-functional** tautologies. Whereas a tautology or logical truth is true solely because of the logical terms it contains in general (e.g. “every”, “some”, and “is”), a truth-functional tautology is true because of the logical terms it contains which are **logical connectives** (e.g. “or”, “and”, and “nor”). Not all logical truths are tautologies of such kind.

43.3 Logical truth and logical constants

Main article: [Logical constant](#)

Logical constants, including **logical connectives** and **quantifiers**, can all be reduced conceptually to logical truth. For instance, two statements or more are **logically incompatible** *if, and only if* their **conjunction** is logically false. One statement **logically implies** another when it is logically incompatible with the **negation** of the other. A statement is logically false if, and only if its negation is logically true, etc. In this way all logical connectives can be expressed in terms of preserving logical truth.

43.4 Logical truth and rules of inference

The concept of logical truth is closely connected to the concept of a **rule of inference**.*[2]

43.5 Non-classical logics

Main article: [Non-classical logic](#)

Non-classical logic is the name given to **formal systems** which differ in a significant way from standard logical systems such as **propositional** and **predicate logic**. There are several ways in which this is done, including by way of extensions, deviations, and variations. The aim of these departures is to make it possible to construct different models of **logical consequence** and logical truth.*[3]

43.6 See also

- [Contradiction](#)
- [False \(logic\)](#)
- [Satisfiability](#)
- [Tautology \(logic\)](#) (for symbolism of logical truth)
- [Theorem](#)
- [Validity](#)

43.7 References

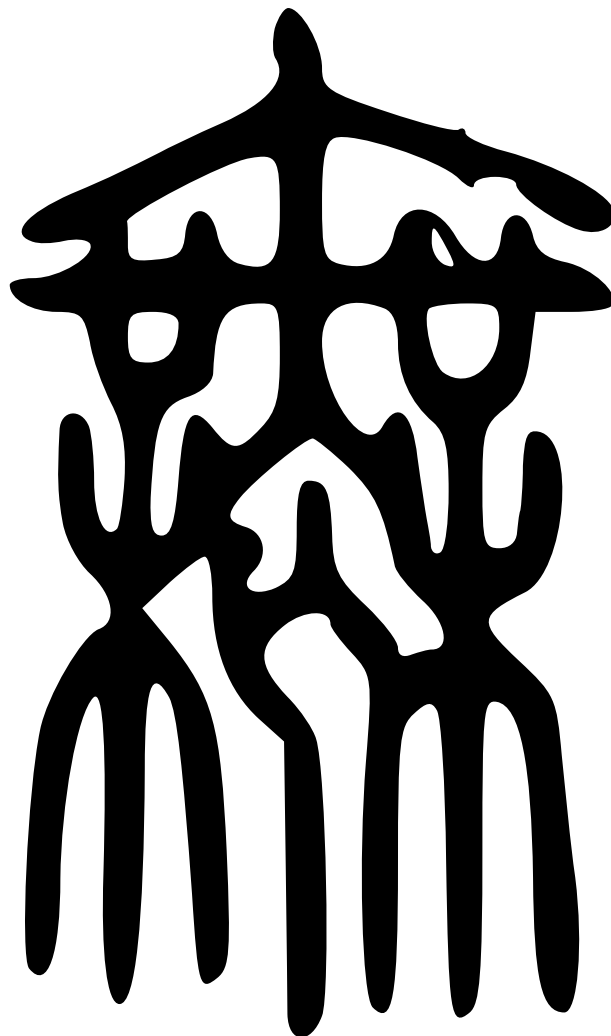
- [1] Quine, Willard Van Orman, *Philosophy of logic*
- [2] Alfred Ayer, *Language, Truth, and Logic*
- [3] Theodore Sider, *Logic for philosophy*

43.8 External links

- Logical truth entry in the *Stanford Encyclopedia of Philosophy*
- Logical truth at the Indiana Philosophy Ontology Project
- Logical truth at PhilPapers

Chapter 44

Mu (negative)



The character 無 in seal script.

The Japanese and Korean term **mu** (Japanese: 無; Korean: 무) or Chinese **wú** (traditional Chinese: 無; simplified Chinese: 无) meaning “not have; without” is a key word in Buddhism, especially the Chan and Zen traditions.



The character 無 in cursive script. See also [this animated stroke order](#).

44.1 The word

The Chinese word *wú* 無 “not; nothing” was borrowed by East Asian languages, particularly the Sino-Xenic “CJKV” languages of Chinese, Japanese, Korean, and Vietnamese.

44.1.1 Pronunciations

The Modern Standard Chinese pronunciation *wú* 無 historically derives from (c. 7th century CE) Middle Chinese *mju*, (c. 3rd century CE) Late Han Chinese *mua*, and reconstructed (c. 6th century BCE) Old Chinese **ma*.^[1]

Other varieties of Chinese have differing pronunciations of 無. Compare Cantonese *mou4* or *mou*; and Min Nan IPA: [boʰɿ] (Quanzhou) and [bəʰɿ] (Zhangzhou).

The common Chinese word *wú* 無 was adopted in the Sino-Japanese, Sino-Korean, and Sino-Vietnamese vocabularies. The Japanese *kanji* 無 has *on'yomi* (Sino-Japanese) readings of *mu* or *bu*, and a *kun'yomi* (Japanese reading) of *na*. The Korean *hanja* 無 is read *mu* (in Revised, McCune–Reischauer, and Yale romanization systems). The Vietnamese Han Viet character 無 is pronounced *vô* or *mô*.

44.1.2 Meanings

Some English translation equivalents of *wú* or *mu* 無 are:

- “no” , “not” , “nothing” , or “without” *[2]
- nothing, not, nothingness, un-, is not, has not, not any*[3]
- [1] Nonexistence; nonbeing; not having; a lack of, without. [2] A negative. [3] Caused to be nonexistent. [4] Impossible; lacking reason or cause. [5] Pure human awareness, prior to experience or knowledge. This meaning is used especially by the Chan school. [6] The 'original nonbeing' from which being is produced in the *Daode jing*. *[4]

In modern Chinese, Japanese and Korean it is commonly used in combination words as a prefix to indicate the absence of something, e.g., Chinese: 无线; pinyin: *wúxiàn* / *musen* (無線) / *museon* (무선) for “wireless” .*[5] In Classical Chinese, it is an impersonal existential verb meaning “not have” .*[6]

The same character is also used in Classical Chinese as prohibitive particle, though in this case it is more properly written Chinese: 毋; pinyin: *wú*.*[7]

44.1.3 Etymology

Old Chinese **ma* 無 is cognate with the Proto-Tibeto-Burman **ma* “not” . This reconstructed root is widely represented in Tibeto-Burman languages, for instance, *ma* means “not” in both Written Tibetan and Written Burmese. *[8]

44.1.4 Characters

In traditional Chinese character classification, the uncommon class of phonetic loan characters involved borrowing the character for one word to write another nearly homophonous word. For instance, the character 其 originally depicted a *ji* “winnowing basket” , and scribes used it as a graphic loan for *qi* 其 “he; she; it” , which resulted in a new character 箕 (clarified with the bamboo radical 竹) to specify the basket.

The character *wu* 無 originally meant “dance” and was later used as a graphic loan for *wu* “not” . The earliest graphs for 無 pictured a person with outstretched arms holding something (possibly sleeves, tassels, ornaments) and represented the word *wu* “dance; dancer” . After *wu* 無 “dance” was borrowed as a loan for *wu* “not; without” , the original meaning was elucidated with the 舛 “opposite feet” at the bottom of *wu* 舞 “dance” .

44.2 The text of the Mu-koan

The Gateless Gate, which is a 13th-century collection of Chan or Zen *kōans*, uses the word *wu* or *mu* in its title (*Wumenguan* or *Mumonkan* 無門關) and first *kōan* case (“Joshu's Dog” 趙州狗子). Chinese Chan calls the word *mu* 無 “the gate to enlightenment” .*[9] The Japanese Rinzai school classifies the Mu *Kōan* as *hosshin* 發心 “resolve to attain enlightenment” , that is, appropriate for beginners seeking *kenshō* “to see the Buddha-nature” .*[10]

Case 1 of *The Gateless Gate* reads as follows:

The koan originally comes from the *Zhaozhou Zhenji Chanshi Yulu* (Chinese: 趙州真際禪師語錄), *The Recorded Sayings of Zen Master Joshu*, koan 132:

The *Book of Serenity* Chinese: 從容; pinyin: *cóngrónglù*, also known as the *Book of Equanimity* or more formally the *Hóngzhì Chánsī Guǎnglù* Chinese: 宏智禪師廣錄, has a longer version of this koan, which adds the following to the start of the version given in the *Zhaozhou Zhenji Chanshi Yulu*.

44.3 Origins

In the original text, the question is used as a conventional beginning to a question-and-answer exchange (*mondo*). The reference is to the *Nirvana Sutra* *[14] which says for example:

In this light, the undisclosed store of the *Tathagata* is proclaimed: “All beings have the Buddha-Nature” .*[15]

Koan 363 in the *Zhaozhou Zhenji Chanshi Yulu* shares the same beginning question.*[16]

44.4 Interpretations

This koan is one of several traditionally used by *Rinzai school* to initiate students into Zen study,*[2] and interpretations of it vary widely.

Yasutani Haku'un of the *Sanbo Kyodan* maintained that

The koan is not about whether a dog does or does not have a Buddha-nature because everything is Buddha-nature, and either a positive or negative answer is absurd because there is no particular thing called Buddha-nature.*[17]

44.4.1 One-sided interpretation

The Japanese scholar *Iriya Yoshitaka* made the following comment on the two versions of the koan:

I have held doubts for some time even with regard to the way the so-called “Chao-chou's Word No” has been previously dealt with. To the question “Does a dog have the Buddha-nature?”, on the one hand Monk Chao-chou replied affirmatively, but on the other hand he replied negatively. However, Zen adherents in Japan have rendered the koan exclusively in terms of his negative response, and completely ignored the affirmative one. Moreover, it has been the custom from the outset to reject the affirmative response as superficial compared to the negative one. It seems that the *Wu-men kuan* is responsible for this peculiarity.*[18]

A similar critique has been given by Steven Heine:

The common approach espoused [...] emphasizes a particular understanding of the role of the koan based on the “head-word” or “critical phrase” method developed by the prominent twelfth century Chinese master, *Daie*. This approach takes the “Mu” response in a non-literal way to express a transcendental negation that becomes the topic of an intensive contemplative experience, during which any and all thoughts or uses of reason and words are to be cut off and discarded for good rather than investigated for their expressive nuances and ramifications. Yet, historical studies demonstrate quite persuasively that an overemphasis on this single approach to one version of the kōan is somewhat misleading.*[19]

44.4.2 “Unasking”the question

The term is often used or translated to mean that the question itself must be “unasked”: no answer can exist in the terms provided. Zhaozhou's answer, which literally means that dogs do not have Buddha nature, has been interpreted by *Robert Pirsig* and *Douglas Hofstadter* to mean that such categorical thinking is a *delusion*, that yes and no are both correct and incorrect.

44.5 In popular culture

In *Robert M. Pirsig's* 1974 novel *Zen and the Art of Motorcycle Maintenance*, *mu* is translated as “no thing”, saying that it meant “unask the question”. He offered the example of a computer circuit using the binary numeral system, in effect using *mu* to represent high impedance:

For example, it's stated over and over again that computer circuits exhibit only two states, a voltage for “one” and a voltage for “zero.” That's silly! Any computer-electronics technician knows otherwise. Try to find a voltage representing one or zero when the power is off! The circuits are in a *mu* state.*[20]

The word features prominently with a similar meaning in Douglas Hofstadter's 1979 book, *Gödel, Escher, Bach*. It is used fancifully in discussions of symbolic logic, particularly Gödel's incompleteness theorems, to indicate a question whose “answer” is to

- un-ask the question,
- indicate the question is fundamentally flawed, or
- reject the premise that a dualistic answer can or will be given.*[21]

“Mu” may be used similarly to “N/A” or “not applicable,” a term often used to indicate the question cannot be answered because the conditions of the question do not match the reality. A layperson's example of this concept is often invoked by the loaded question “Have you stopped beating your wife?”,*[22] to which “mu” would be the only respectable response.

Because of this meaning, programming language Perl 6 uses “Mu” for the root of its type hierarchy.*[23]

44.6 See also

- *Ma (negative space)*
- Many-valued logic
- Not even wrong
- Wronger than wrong
- *Wu wei*, a term in Chinese philosophy
- Wu-Wo tea ceremony

44.7 References

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- [2] Baroni, Helen Josephine. *The illustrated encyclopedia of Zen Buddhism*, p. 228.
- [3] Fischer-Schreiber, I., Ehrhard, R. K. & Diener, M. S. (1991). *The Shambhala dictionary of Buddhism and Zen* (M. H. Kohn, Trans.). Boston: Shambhala. P. 147.
- [4] Muller, A. Charles, ed. *Digital Dictionary of Buddhism* (Edition of 2010 July 31) page: “non-existent”. Note this quoted definition is abridged.
- [5] WWWJDIC: 無; 无【む】 (n) (1) nothing; naught; nought; nil; zero; (pref) (2) un-; non-
- [6] Pulleyblank, E.G. (1995). *Outline of classical Chinese grammar*. Vancouver: UBC Press. p. 30. ISBN 978-0-7748-0541-4.
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- [8] Schuessler, p. 519.
- [9] Muller.
- [10] Baroni, p. 228.
- [11] Aitken, Robert, ed. and trans. (1991). *The Gateless Barrier: The Wu-men Kuan (Mumonkan)*. San Francisco: North Point Press. ISBN 0-86547-442-7.
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44.9 External links

- Four myths about Zen Buddhism’ s “Mu Koan” , Steven Heine
- The Koan Mu, John Tarrant

Chapter 45

Mutual exclusivity

This article is about logical exclusivity of events and propositions. For the concept in concurrent computing, see [Mutual exclusion](#). For the concept in developmental psychology, see [Mutual exclusivity \(psychology\)](#).

In [logic](#) and [probability theory](#), two propositions (or events) are **mutually exclusive** or **disjoint** if they cannot both be true (occur). An example are the two outcomes of a single coin toss, which can result in either heads or tails, but not both.

In the coin-tossing example, both outcomes are, in theory, [jointly exhaustive](#), which means that at least one of the outcomes must happen, so these two possibilities together exhaust all the possibilities.*[1] However, not all mutually exclusive events are collectively exhaustive. For example, the outcomes 1 and 4 of a single roll of a [six-sided die](#) are mutually exclusive (both cannot happen at the same time) but not collectively exhaustive (there are other possible outcomes; 2,3,5,6).

45.1 Logic

In [logic](#), two mutually exclusive propositions are propositions that [logically cannot](#) be true in the same sense at the same time. To say that more than two propositions are mutually exclusive, depending on context, means that one cannot be true if the other one is true, or at least one of them cannot be true. The term *pairwise mutually exclusive* always means that two of them cannot be true simultaneously.

45.2 Probability

In [probability theory](#), events $E_1, E_2, \dots, E_n$ are said to be **mutually exclusive** if the occurrence of any one of them implies the non-occurrence of the remaining $n - 1$ events. Therefore, two mutually exclusive events cannot both occur. Formally said, the intersection of each two of them is empty (the null event): $A \cap B = \emptyset$. In consequence, mutually exclusive events have the property: $P(A \cap B) = 0$.*[2]

For example, it is impossible to draw a card that is both red and a club because clubs are always black. If just one card is drawn from the deck, either a red card (heart or diamond) or a black card (club or spade) will be drawn. When A and B are mutually exclusive, $P(A \cup B) = P(A) + P(B)$.*[3] To find the probability of drawing a red card or a club, for example, add together the probability of drawing a red card and the probability of drawing a club. In a standard 52-card deck, there are twenty-six red cards and thirteen clubs: $26/52 + 13/52 = 39/52$ or $3/4$.

One would have to draw at least two cards in order to draw both a red card and a club. The probability of doing so in two draws depends on whether the first card drawn were replaced before the second drawing, since without replacement there is one fewer card after the first card was drawn. The probabilities of the individual events (red, and club) are multiplied rather than added. The probability of drawing a red and a club in two drawings without replacement is then $26/52 \times 13/51 \times 2 = 676/2652$, or $13/51$. With replacement, the probability would be $26/52 \times 13/52 \times 2 = 676/2704$, or $13/52$.

In probability theory, the word *or* allows for the possibility of both events happening. The probability of one or both

events occurring is denoted $P(A \cup B)$ and in general it equals $P(A) + P(B) - P(A \cap B)$.^{*} [3] Therefore, in the case of drawing a red card or a king, drawing any of a red king, a red non-king, or a black king is considered a success. In a standard 52-card deck, there are twenty-six red cards and four kings, two of which are red, so the probability of drawing a red or a king is $26/52 + 4/52 - 2/52 = 28/52$.

Events are **collectively exhaustive** if all the possibilities for outcomes are exhausted by those possible events, so at least one of those outcomes must occur. The probability that at least one of the events will occur is equal to one.^{*} [4] For example, there are theoretically only two possibilities for flipping a coin. Flipping a head and flipping a tail are collectively exhaustive events, and there is a probability of one of flipping either a head or a tail. Events can be both mutually exclusive and collectively exhaustive.^{*} [4] In the case of flipping a coin, flipping a head and flipping a tail are also mutually exclusive events. Both outcomes cannot occur for a single trial (i.e., when a coin is flipped only once). The probability of flipping a head and the probability of flipping a tail can be added to yield a probability of 1: $1/2 + 1/2 = 1$.^{*} [5]

45.3 Statistics

In **statistics** and **regression analysis**, an **independent variable** that can take on only two possible values is called a **dummy variable**. For example, it may take on the value 0 if an observation is of a male subject or 1 if the observation is of a female subject. The two possible categories associated with the two possible values are mutually exclusive, so that no observation falls into more than one category, and the categories are exhaustive, so that every observation falls into some category. Sometimes there are three or more possible categories, which are pairwise mutually exclusive and are collectively exhaustive —for example, under 18 years of age, 18 to 64 years of age, and age 65 or above. In this case a set of dummy variables is constructed, each dummy variable having two mutually exclusive and jointly exhaustive categories —in this example, one dummy variable (called D_1) would equal 1 if age is less than 18, and would equal 0 *otherwise*; a second dummy variable (called D_2) would equal 1 if age is in the range 18-64, and 0 otherwise. In this set-up, the dummy variable pairs (D_1, D_2) can have the values (1,0) (under 18), (0,1) (between 18 and 64), or (0,0) (65 or older) (but not (1,1), which would nonsensically imply that an observed subject is both under 18 and between 18 and 64). Then the dummy variables can be included as independent (explanatory) variables in a regression. Note that the number of dummy variables is always one less than the number of categories: with the two categories male and female there is a single dummy variable to distinguish them, while with the three age categories two dummy variables are needed to distinguish them.

Such **qualitative data** can also be used for **dependent variables**. For example, a researcher might want to predict whether someone goes to college or not, using family income, a gender dummy variable, and so forth as explanatory variables. Here the variable to be explained is a dummy variable that equals 0 if the observed subject does not go to college and equals 1 if the subject does go to college. In such a situation, **ordinary least squares** (the basic regression technique) is widely seen as inadequate; instead **probit regression** or **logistic regression** is used. Further, sometimes there are three or more categories for the dependent variable —for example, no college, community college, and four-year college. In this case, the **multinomial probit** or **multinomial logit** technique is used.

45.4 See also

- Probability theory
- Collectively exhaustive events
- Event structure
- Disjoint sets
- Synchronicity
- Dichotomy
- Oxymoron

45.5 Notes

- [1] Miller, Scott , and Donald Childers. *Probability and Random Processes*. Academic Press, 2012. p. 8: “The sample space is the collection or set of 'all possible' distinct (collectively exhaustive and mutually exclusive) outcomes of an experiment.”
- [2] Mutually Exclusive Events. Interactive Mathematics. December 28, 2008.
- [3] Stats: Probability Rules.
- [4] Scott Bierman. A Probability Primer. Carleton College. Pages 3-4.
- [5] Non-Mutually Exclusive Outcomes. CliffsNotes.

45.6 References

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- Basic Statistics for Business & Economics, 4th edition, written by doctors Douglas A. Lind, William G. Marchal, and Samuel A. Wathen.

Chapter 46

Negation

For other uses, see [Negation \(disambiguation\)](#) and [NOT gate](#).

In [logic](#), **negation**, also called **logical complement**, is an [operation](#) that takes a [proposition](#) p to another proposition “not p ”, written $\neg p$, which is interpreted intuitively as being true when p is false and false when p is true. Negation is thus a unary (single-argument) [logical connective](#). It may be applied as an operation on [propositions](#), [truth values](#), or [semantic values](#) more generally. In [classical logic](#), negation is normally identified with the [truth function](#) that takes *truth* to *falsity* and vice versa. In [intuitionistic logic](#), according to the [Brouwer–Heyting–Kolmogorov interpretation](#), the negation of a proposition p is the proposition whose proofs are the refutations of p .

46.1 Definition

No agreement exists as to the possibility of defining negation, as to its logical status, function, and meaning, as to its field of applicability..., and as to the interpretation of the negative judgment, (F.H. Heinemann 1944).^{*} [1]

Classical negation is an [operation](#) on one [logical value](#), typically the value of a [proposition](#), that produces a value of *true* when its operand is false and a value of *false* when its operand is true. So, if statement A is true, then $\neg A$ (pronounced “not A ”) would therefore be false; and conversely, if $\neg A$ is true, then A would be false.

The [truth table](#) of $\neg p$ is as follows:

Classical negation can be defined in terms of other logical operations. For example, $\neg p$ can be defined as $p \rightarrow F$, where “ $\rightarrow$ ” is [logical consequence](#) and F is absolute falsehood. Conversely, one can define F as $p \ \& \ \neg p$ for any proposition p , where “ $\&$ ” is [logical conjunction](#). The idea here is that any [contradiction](#) is false. While these ideas work in both classical and intuitionistic logic, they do not work in [Brazilian logic](#), where contradictions are not necessarily false. But in classical logic, we get a further identity: $p \rightarrow q$ can be defined as $\neg p \vee q$, where “ $\vee$ ” is [logical disjunction](#): “not p , or q ”.

Algebraically, classical negation corresponds to [complementation](#) in a [Boolean algebra](#), and intuitionistic negation to [pseudocomplementation](#) in a [Heyting algebra](#). These algebras provide a [semantics](#) for classical and intuitionistic logic respectively.

46.2 Notation

The negation of a proposition p is notated in different ways in various contexts of discussion and fields of application. Among these variants are the following:

In [set theory](#) $\setminus$ is also used to indicate ‘not member of’: $U \setminus A$ is the set of all members of U that are not members of A .

No matter how it is notated or [symbolized](#), the negation $\neg p$ / $\neg p$ can be read as “it is not the case that p ”, “not that p ”, or usually more simply (though not grammatically) as “not p ”.

46.3 Properties

46.3.1 Double negation

Within a system of **classical logic**, double negation, that is, the negation of the negation of a proposition p , is **logically equivalent** to p . Expressed in symbolic terms, $\neg\neg p \Leftrightarrow p$. In **intuitionistic logic**, a proposition implies its double negation but not conversely. This marks one important difference between classical and intuitionistic negation. Algebraically, classical negation is called an **involution** of period two.

However, in **intuitionistic logic** we do have the equivalence of $\neg\neg p$ and $\neg p$. Moreover, in the propositional case, a sentence is classically provable if its double negation is intuitionistically provable. This result is known as **Glivenko's theorem**.

46.3.2 Distributivity

De Morgan's laws provide a way of **distributing** negation over **disjunction** and **conjunction** :

$$\begin{aligned}\neg(a \vee b) &\equiv (\neg a \wedge \neg b), \text{ and} \\ \neg(a \wedge b) &\equiv (\neg a \vee \neg b).\end{aligned}$$

46.3.3 Linearity

In **Boolean algebra**, a linear function is one such that:

If there exists $a_0, a_1, \dots, a_n \in \{0,1\}$ such that $f(b_1, \dots, b_n) = a_0 \oplus (a_1 \wedge b_1) \oplus \dots \oplus (a_n \wedge b_n)$, for all $b_1, \dots, b_n \in \{0,1\}$.

Another way to express this is that each variable always makes a difference in the **truth-value** of the operation or it never makes a difference. Negation is a linear logical operator.

46.3.4 Self dual

In **Boolean algebra** a self dual function is one such that:

$f(a_1, \dots, a_n) = \sim f(\sim a_1, \dots, \sim a_n)$ for all $a_1, \dots, a_n \in \{0,1\}$. Negation is a self dual logical operator.

46.4 Rules of inference

There are a number of equivalent ways to formulate rules for negation. One usual way to formulate classical negation in a **natural deduction** setting is to take as primitive rules of inference *negation introduction* (from a derivation of p to both q and $\neg q$, infer $\neg p$; this rule also being called *reductio ad absurdum*), *negation elimination* (from p and $\neg p$ infer q ; this rule also being called *ex falso quodlibet*), and *double negation elimination* (from $\neg\neg p$ infer p). One obtains the rules for intuitionistic negation the same way but by excluding double negation elimination.

Negation introduction states that if an absurdity can be drawn as conclusion from p then p must not be the case (i.e. p is false (classically) or refutable (intuitionistically) or etc.). Negation elimination states that anything follows from an absurdity. Sometimes negation elimination is formulated using a primitive absurdity sign $\perp$. In this case the rule says that from p and $\neg p$ follows an absurdity. Together with double negation elimination one may infer our originally formulated rule, namely that anything follows from an absurdity.

Typically the intuitionistic negation $\neg p$ of p is defined as $p \rightarrow \perp$. Then negation introduction and elimination are just special cases of implication introduction (**conditional proof**) and elimination (**modus ponens**). In this case one must also add as a primitive rule *ex falso quodlibet*.

46.5 Programming

As in mathematics, negation is used in **computer science** to construct logical statements.

```
if (!(r == t)) { /*...statements executed when r does NOT equal t...*/ }
```

The "!" signifies logical NOT in B, C, and languages with a C-inspired syntax such as C++, Java, JavaScript, Perl, and PHP. "NOT" is the operator used in ALGOL 60, BASIC, and languages with an ALGOL- or BASIC-inspired syntax such as Pascal, Ada, Eiffel and Seed7. Some languages (C++, Perl, etc.) provide more than one operator for negation. A few languages like PL/I and Ratfor use $\neg$ for negation. Some modern computers and operating systems will display $\neg$ as ! on files encoded in ASCII. Most modern languages allow the above statement to be shortened from `if (!(r == t))` to `if (r != t)`, which allows sometimes, when the compiler/interpreter is not able to optimize it, faster programs.

In computer science there is also *bitwise negation*. This takes the value given and switches all the binary 1s to 0s and 0s to 1s. See *bitwise operation*. This is often used to create *ones' complement* or "~" in C or C++ and *two's complement* (just simplified to "-" or the negative sign since this is equivalent to taking the arithmetic negative value of the number) as it basically creates the opposite (negative value equivalent) or mathematical complement of the value (where both values are added together they create a whole).

To get the absolute (positive equivalent) value of a given integer the following would work as the "-" changes it from negative to positive (it is negative because " $x < 0$ " yields true)

```
unsigned int abs(int x) { if (x < 0) return -x; else return x; }
```

To demonstrate logical negation:

```
unsigned int abs(int x) { if (!(x < 0)) return x; else return -x; }
```

Inverting the condition and reversing the outcomes produces code that is logically equivalent to the original code, i.e. will have identical results for any input (note that depending on the compiler used, the actual instructions performed by the computer may differ).

This convention occasionally surfaces in written speech, as computer-related *slang* for *not*. The phrase !voting, for example, means "not voting".

46.6 Kripke semantics

In Kripke semantics where the semantic values of formulae are sets of possible worlds, negation can be taken to mean set-theoretic complementation. (See also possible world semantics.)

46.7 See also

- Logical conjunction
- Logical disjunction
- NOT gate
- Bitwise NOT
- Ampheck
- Apophasis
- Cyclic negation
- Double negative elimination
- Grammatical polarity
- Negation (linguistics)
- Negation as failure

- Square of opposition
- Binary opposition

46.8 References

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46.9 Further reading

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- G. H. von Wright, 1953–59, “On the Logic of Negation” , *Commentationes Physico-Mathematicae* 22.
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- Marco Tettamanti, Rosa Manenti, Pasquale A. Della Rosa, Andrea Falini, Daniela Perani, Stefano F. Cappa and Andrea Moro (2008). “Negation in the brain: Modulating action representation” , *NeuroImage* Volume 43, Issue 2, 1 November 2008, pages 358–367, <http://dx.doi.org/10.1016/j.neuroimage.2008.08.004/>

46.10 External links

- Negation entry by Laurence R. Horn & Heinrich Wansing in the *Stanford Encyclopedia of Philosophy*
- Hazewinkel, Michiel, ed. (2001), “Negation” , *Encyclopedia of Mathematics*, Springer, ISBN 978-1-55608-010-4
- NOT, on MathWorld

Chapter 47

New Zealand citizens-initiated referendum, 2009

The **New Zealand corporal punishment referendum, 2009** was held from 31 July to 21 August, and was a citizens-initiated referendum on parental corporal punishment. It asked: ^{*}[2]

“Should a smack as part of good parental correction be a criminal offence in New Zealand?”

Voter turnout was 56.1%. 87.4% of votes answered 'no'.

47.1 Background

The petition for the referendum was launched in February 2007 in response to the **Crimes (Substituted Section 59) Amendment Bill**, which would remove parental correction as a defence for assault against children. The petition was organised by Sheryl Savill with support from Kiwi Party's **Larry Baldock**. ^{*}[3]^{*}[4] The wording of the petition was approved by Clerk of the House David McGee on 21 February 2007. ^{*}[5]

The bill, introduced by **Sue Bradford**, was passed its third reading in Parliament by 113 votes to 7 on 16 May 2007. Meanwhile organisations and individuals led by Larry Baldock continued to collect signatures to initiate a referendum. They fell short by about 15,500 signatures (many were invalid), and they were granted two further months to make up the difference. ^{*}[6] Eventually the petition attracted 310,000 signatures from voters, surpassing the 285,000 signatures, or 10 percent of total voters, required to force a referendum.

In June 2008, then prime minister **Helen Clark** announced that the referendum would not take place alongside the **2008 election** as the organisers had been hoping. ^{*}[7] The decision was based on advice from the Chief Electoral Officer that holding such a referendum could lead to voter confusion. Instead, a **postal ballot** was selected, starting 30 July 2009 for eligible voters and closing on 21 August 2009.

Prime Minister John Key said that the government would change the law if it was not working, but that he believed the current law was working well. ^{*}[8]

47.2 Criticism regarding question wording

The wording of citizens-initiated referendum questions was ultimately the responsibility of the Clerk of the House of Representatives, David McGee. Under the referendum legislation, the wording of the question is required to “convey clearly the purpose and effect” of the referendum. ^{*}[9]

The referendum question was interpreted by some to assume that “a smack” can form part of “good parental correction”. Murray Edridge, Chief Executive of Barnardos New Zealand, claimed that the question “presupposes that smacking is part of good parental correction” ^{*}[11] which he described as “a debatable issue”. ^{*}[12] Prime Minister John Key described the question as “ambiguous” and pointed out that it “could be read a number of different ways”. **Leader of the Opposition Phil Goff** expressed concern that the question “implies that if you vote

'yes' that [sic] you're in favour of criminal sanctions being taken against reasonable parents – actually nobody believes that.” * [8]

Both John Key and Phil Goff stated that they did not intend to vote in the referendum, with Key calling the question “ridiculous” . * [10] The Prime Minister believed turnout would be low. * [13]

Sue Bradford introduced a *private member's bill*, the Citizens Initiated Referenda (Wording of Questions) Amendment Bill, designed to prevent future citizens-initiated referenda from having poorly worded questions, and the *National government* considered adopting it. * [10] * [14] * [15]

On this bill, she wrote: * [14]

An example of an approved referendum question that is both leading and misleading is the NZ Referendum on Child Discipline 2009 proposed by Larry Baldock.

The question approved for that referendum “Should a smack as part of good parental correction be a criminal offence in New Zealand?” is leading in that the use of the word “good” before “parental correction” makes a value-judgment which predetermines the answer. People answering the question will be drawn to answer “no” on the basis that what is “good” cannot be criminal.

Caritas Aotearoa New Zealand has made this argument: * [16]

Mr Smith says the upcoming referendum will not provide clarity on the question of child discipline, because it is possible to support the 2007 amendment while voting either Yes or No to the referendum question: Should a smack as part of good parental correction be a criminal offence in New Zealand?

However, Caritas recognises that in the political context of the referendum, a 'Yes' vote is seen to be a vote for the status quo, while a 'No' vote is seen to be a vote against the 2007 amendment.

“In this context, we recommend a 'Yes' vote, as we believe the status quo is close to the position that we recommended to the Select Committee. However, the wording of the question is so ambiguous, many New Zealanders who support efforts to reduce violence against children, may in good conscience still feel obliged to vote 'No'. It will be hard to understand what the outcome of the referendum may mean,” says Mr Smith.

He says Caritas will be writing to the Prime Minister and other relevant politicians, expressing concern that the ambiguous nature of the question will result in an outcome that cannot be understood as either supporting or opposing the 2007 amendment.

47.3 Campaigns

47.3.1 The “yes” campaign

Most front-line child welfare organisations, such as Plunket, Barnardos, Save the Children, Unicef, Women's Refuge, CPAG, Epoch and Jigsaw, believed the referendum question was misleading, and encouraged their supporters to vote “yes” . * [17] These organisations, along with many others, backed the “The Yes Vote” campaign. * [17] Māori Party co-leader Pita Sharples and Green Party co-leader Russel Norman wanted the current law retained, with Norman adding he would vote Yes. * [8]

47.3.2 The “no” campaign

The “Vote NO” campaign website was launched on 22 June 2009. * [18] The campaign was supported by Simon Barnett. ACT leader Rodney Hide said he would vote no, believing parents have the right to lightly smack their children. * [8] Family First and The Kiwi Party also supported voting 'no'.

47.4 Results

47.4.1 Nationwide

47.4.2 By electorate

47.5 Aftermath

47.5.1 Government response

Prime Minister John Key promised to bring forward the planned review of the law.* [20]

47.5.2 John Boscawen's private member's bill

By coincidence, Government coalition and ACT MP John Boscawen had a private member's bill legalising smacking drawn from the ballot less than a week after the referendum. Prime Minister John Key said his National Party would vote it down, with the Labour Party and Green Party also opposed making it likely to be lost after the first reading of the bill.* [21] In September 2010 the Bill was in fact defeated 115–5 on its first reading in Parliament.

47.5.3 Binding referendum

Dissatisfied with the government's response, the Kiwi Party has put forward another referendum to make referendums legally binding.* [22] The question “Should Parliament be required to pass legislation that implements the majority result of a citizens initiated referendum where that result supports a law change?” was approved by the Clerk of the House on 17 December 2009.* [23] However, the petition failed to gain sufficient signatures and subsequently lapsed.

47.5.4 Public protests

A protest against prime minister John Key's response to the referendum was held on Saturday, 21 November 2009 in Auckland. The New Zealand Herald estimated that between 4,000 and 5,000 people attended.* [24]

47.6 Opinion polls

47.7 See also

- Crimes Act 1961, the Act that was amended
- Crimes (Substituted Section 59) Amendment Act 2007 the amending Act
- Crime in New Zealand
- Corporal punishment in the home

47.8 References

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- [3] Collins, Simon (1 November 2008). “Campaign targets pro-smack petitioners” . *The New Zealand Herald*. Retrieved 30 October 2011.
- [4] Collins, Simon (23 February 2007). “Petition offers voice against Bradford bill” . *The New Zealand Herald*. Retrieved 30 October 2011.

- [5] New Zealand Gazette, 1 March 2007.
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- [9] Citizens Initiated Referenda Act 1993, section 10.
- [10] Trevett, Claire (23 June 2009). “Key sees merit in Greens' referendum bill” . *The New Zealand Herald*. Retrieved 30 October 2011.
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- [21] Audrey Young (27 August 2009). “Key scuttles move to change smacking law” . *The New Zealand Herald*.
- [22] The Kiwi Party (5 September 2009). “New petition will be launched says Kiwi Party” . *Scoop.co.nz*.
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- [24] “One arrest as thousands join 'March for Democracy'”. *The New Zealand Herald* (Auckland). NZPA. 21 November 2009.
- [25] “Poll finds smacking OK with most Kiwis” . *One News*. 3 August 2009. Retrieved 30 October 2011.

47.9 External links

- Elections New Zealand – 2009 Citizens Initiated Referendum
- The Yes Vote campaign
- The Vote No campaign

Chapter 48

Open-question argument

The **open-question argument** is a philosophical **argument** put forward by British philosopher G. E. Moore in §13 of *Principia Ethica* (1903),* [1] to refute the equating of the property of goodness with some non-moral property, X, whether naturalistic (e.g. pleasure) or meta-physical (e.g. God's command). That is, Moore's argument attempts to show that no moral property is identical to a natural property.* [2] The argument takes the form of syllogistic **modus tollens**:

Premise 1: If X is (analytically equivalent to) good, then the question “Is it true that X is good?” is meaningless.

Premise 2: The question “Is it true that X is good?” is not meaningless (i.e. it is an open question).

Conclusion: X is not (analytically equivalent to) good.

The type of question Moore refers to in this argument is an identity question, “Is it true that X is Y?” Such a question is an *open question* if a conceptually competent speaker can question this; otherwise the question is *closed*. For example, “I know he is a vegetarian, but does he eat meat?” would be a closed question. However, “I know that it is pleasurable, but is it good?” is an open question; the question cannot be deduced from the conceptual terms alone.

The open-question argument claims that any attempt to identify morality with some set of observable, natural properties will always be an open question (unlike, say, a horse, which can be defined in terms of observable properties). Moore further argued that if this is true, then moral facts cannot be reduced to natural properties and that therefore **ethical naturalism** is false. Put another way, what Moore is saying is that any attempt to define good in terms of a naturalistic property fails because all definitions can be transformed into closed questions (the subject and predicate being conceptually identical; it is given in language itself that the two terms mean the same thing); however, all purported naturalistic definitions of good are transformable into open questions. It's still controversial whether good is the same thing as pleasure, etc. Shortly before (in section §11), Moore said if you define good as pleasure (or any other naturalistic property) you could substitute “good” for “pleasure” anywhere it occurs. However, “pleasure is good” is a meaningful, informative statement; but “good is good” (after making the substitution) is an empty, non-informative tautology.

48.1 Objections and rejoinders

48.1.1 Begging the question

The idea that Moore **begs the question** (i.e. assumes the conclusion in a premise) was first raised by W. Frankena.* [3] Since analytic equivalency, for two objects X and Y, logically results in the question “Is it true that X is Y?” being meaningless (by Moore's own argument), to say that the question is meaningless is to concede analytic equivalency. Thus Moore begs the question in the second premise. He assumes that the question is a meaningful one (i.e. that it is an open question). This begs the question and the open-question argument thus fails.

In response to this, the open-question argument can be reformulated.*[4] The Darwall-Gibbard-Railton reformulation argues for the impossibility of equating a moral property with a non-moral one using the internalist theory of motivation.

Premise 1: If X is good, then X will in itself motivate an individual to pursue it.

Premise 2: A cognitively sound and competent speaker of English (or whatever language the OQA is made in) can understand that Action X* produces X, yet not pursue X*.

Conclusion: X is not (analytically equivalent to) good.

This evidently presupposes the internalist theory of motivation (i.e. a belief can itself motivate), in contrast to the externalist theory of motivation, also known as the Humean theory of motivation (i.e. both a belief and a desire are required to motivate). If internalism is true, then the OQA avoids begging the question against the naturalist, and succeeds in showing that the good cannot be equated to some other property.

The argument is also contested on the grounds of the supremacy of internalism. Internalism is supported by the **Belief-Desire-Intention model** of motivation, whereby desire (i.e. that some proposition ought to be made or kept true) and belief (i.e. that some proposition is true) combine to form intention, and thereby, action. To argue for the special motivational effects of moral beliefs is to commit the fallacy of **special pleading**.

48.1.2 Meaningful analysis

The main assumption within the open-question argument can be found within premise 1. It is assumed that analytic equivalency will result in meaningless analysis.*[5] Thus, if we understand Concept C, and Concept C* can be analysed in terms of Concept C, then we should grasp concept C* by virtue of our understanding of Concept C. Yet it is obvious that such understanding of Concept C* only comes about through the analysis proper. Mathematics would be the prime example: mathematics is tautological and its claims are true by definition, yet we can develop new mathematical conceptions and theorems. Thus, X (i.e. some non-moral property) might well be analytically equivalent to the good, and still the question of “Is X good?” can be meaningful. Ergo premise 1 does not hold and the argument falls.

48.1.3 Frege sense–reference distinction

Main article: **Sense and reference**

Sense and reference are two different aspects of some terms' **meanings**. A term's *reference* is the *object* to which the term refers, while the term's *sense* is the *way* that the term refers to that object.

There is a difference between the sense of a term and its reference (i.e. the object itself).*[6] Thus, we can understand a claim like “goodness is identical with pleasure” as an *a posteriori* identity claim similar to “Water is H₂O”. The question “This is H₂O but is it water?” is intelligible and so, in that limited sense, whether or not water is H₂O is an open question; note that this does not address the issue of significance. But that does not lead us to conclude that water is not H₂O. “Water is H₂O” is an identity claim that is known to be true *a posteriori* (i.e., it was discovered via empirical investigation). Another example is “redness” being identical to certain phenomena of electromagnetism. This is discovered by empirical investigation. Similarly, many moral naturalists argue that “rightness” can be discovered as an *a posteriori* truth, by investigating the different claims, like that of pleasure being the good, or of duty being the good.

This is done by invoking rightness and wrongness to explain certain empirical phenomena, and then discovering *a posteriori* whether maximizing utility occupies the relevant explanatory role.*[7] For example, they argue that since right actions contingently have certain effects e.g. being causally responsible for a tendency towards social stability—so it follows we can fix the term “right” refer to the empirical description “the property of acts, whatever it is, that is causally responsible for their tendency towards social stability.”*[8] With this description for “right,” we can then investigate which acts accomplish this: e.g. those actions that maximize utility. We can then conclude that we have learned that “right” refers to “maximizing utility” through *a posteriori* means.

The Frege sense–reference distinction can be understood in layman's terms by using the analogy of the Masked Man.*[9] A citizen living on the frontiers of the Wild West is told by the sheriff that his brother is the Masked Man

who has recently been robbing banks. The citizen protests that he understands who his brother is, and who the Masked Man is supposed to be, and can meaningfully ask, "Is my brother the Masked Man?" Obviously, analytic equivalency is of no relevance here. The matter is an empirical one, which the citizen must investigate a posteriori. The absurdity of dismissing the claim as such is apparent.

However, the above account of a sort of *a posteriori* moral search is unsatisfactory in that normal value, and not moral value, can be used to explain the relevant events. Normal value arises from the relationship between desire and a state of affairs. People tend also to objectify such value, into categorical moral value, though this is fallacious. So, a situation that can be explained by the existence of real moral value (e.g. the fulfillment of preferences, the tendency towards social stability) can also be explained by non-moral value. This explanation is far simpler, given the ontological difficulties surrounding moral value. As J. L. Mackie argued with his *argument from queerness*, moral values (i.e. oughts) that exist in the natural world (of facts), is highly queer, and we ought to favour a completely naturalistic explanation instead.*[10]

Another problem with the *a posteriori* moral search is that we lack an epistemic account of how we access moral facts. This is the epistemic aspect of Mackie's argument from queerness.*[11] Failing such an account, the postulation of moral value will be egregious.

48.2 Notes and references

- [1] Moore, G. E. (1903), *Principia Ethica*.
- [2] Copp, David (2001), *Morality, Normativity, and Society*, Oxford University Press, ISBN 978-0-19-514401-7, p. 230.
- [3] Miller, Alexander (2003), *An Introduction to Contemporary Metaethics* (2nd ed.), Polity, ISBN 978-0745646596.
- [4] Copp 2001.
- [5] Copp 2001.
- [6] Copp 2001.
- [7] LaFollette, Hugh, ed. (2000), *The Blackwell Guide to Ethical Theory*, Black Philosophy Guides, Wiley, ISBN 978-0631201199, p. 28.
- [8] LaFollette 2000.
- [9] Fyfe, A. : Desire Utilitarianism, http://www.alonzofyfe.com/article_du.shtml]
- [10] Mackie, J. L. (1990) [1977], *Ethics: Inventing right and wrong*, Penguin UK, ISBN 978-0141960098.
- [11] Mackie 1990.

Chapter 49

Performative contradiction

A **performative contradiction** (German: *performativer Widerspruch*) arises when the **propositional** content of a statement contradicts the **presuppositions** of asserting it. An example of a performative contradiction is the statement “I am dead” because the very act of proposing it presupposes the actor is alive. Performative contradictions cannot be rationally advanced in argument.

49.1 Various examples

The statement “Don't do as I do, do as I say” is arguably a performative contradiction because its assertion presupposes it being **said** by an asserter, rendering the two directives **contradictory**. The statement “**Hierarchies do not exist**” offers a more subtle example of performative contradiction referring to the very capacity of making a statement, because the statement itself is a hierarchy of **semiotic relations** of letters (as symbols) formed into words (as signifiers) formed into a sentence (as a statement).

49.2 Usage in philosophy

Solipsism is often held to be a performative contradiction if stated. **Jürgen Habermas**, **Hans-Hermann Hoppe*** [1] and related philosophers point out that statements spoken during justificatory argumentation carry additional presuppositions and so certain statements are performative contradictions in this context. Habermas claims that **post-modernism's epistemological relativism** suffers from a performative contradiction. Hoppe claims in his theory of argumentation **ethics** that arguing for any political position other than **libertarian anarchism** results in a performative contradiction.

Jaakko Hintikka more rigorously fleshed out the notion of performative contradiction in analyzing **Descartes'** famous *cogito ergo sum* argument, concluding that *cogito ergo sum* relies on performance rather than logical inference.* [2]

49.3 See also

- Contradiction
- Discourse ethics
- Liar paradox
- Paradox
- Presupposition
- Self-refuting idea

49.4 References

- [1] Hoppe, Hans-Hermann (September 1988). “The Ultimate Justification of Private Property” . *Liberty* **1**: 20.
- [2] Hintikka, Jaakko (1962). “Cogito, Ergo Sum: Inference or Performance?”. *The Philosophical Review* **71** (1): 3–32. JSTOR 2183678.

49.5 Further reading

- Habermas, Jürgen (1990). “Discourse Ethics: Notes on a Program of Philosophical Justification” . In Habermas. *Moral Consciousness and Communicative Action*. trans. C. Lenhardt and S.W. Nicholsen. Cambridge, Mass.: MIT Press.
- Hoppe, Hans-Hermann. “On the Ultimate Justification of the Ethics of Private Property” . *The Economics and Ethics of Private Property*.

Chapter 50

Politicized issue

A **politicized issue** or **hot-button issue** is a social, economic, theological, spiritual, scientific or legal issue which has become a **political** issue, as a result of deliberate action or otherwise, whereby people become politically **active** over that issue.

A contemporary example is **abortion**, an emotive and moral issue which has become a highly contentious legal and political issue in many countries. Terminology relating to such issues often takes the form of **loaded language** which contrasts with the pejorative terms used in reference to opponents. For example, those who think that abortion should be a legal medical option describe their views as **pro-choice**, and may label their opponents as “woman haters” . Similarly, those opposed to legalized abortion describe their views as **pro-life**, and may label their opponents as “baby-killers” or “murderers” .

Heavily politicized issues are often called “hot-button issues” because almost any position taken is sure to please one group of people and offend another. Politically active people and organizations will often employ a 'litmus test' to evaluate a candidate. For example, a candidate for political office who shares the same view on abortion as a political organization may receive their endorsement regardless of the candidate's views on other subjects.

Sometimes the term “politicized” itself becomes a negative label. A group holding one opinion on an issue will sometimes accuse their opposition of “politicizing the issue” . The implication is that they are honestly dealing with the issue on the merits while the opposition is bringing the issue up purely for political gain.

Public choice economics teaches that any issue where any group has a substantial financial stake is likely to be politicized.

Other politicized issues include **global warming**, **curing autism**, **separation of church and state**, **same-sex marriage**, **elimination of poverty**, **war**, **gun control**, **welfare**, **capital punishment**, and **embryonic stem cell research**.

Party politicisation is a process whereby the environment ascends the political agenda to become electorally salient and the subject of party competition *[1]

50.1 See also

- **Politicization of science**

50.2 References

- [1] Carter, Neil 2007: The Politics of the Environment - Ideas Activism Policy, second edition, Neil Carter, ISBN 978-0-521-86802-0 hardback, page 127



Gun control issues such as laws which permit open carry of handguns in public places are “hot button” issues. Pictured is a man openly carrying a 9mm Browning Hi Power handgun at a fast food restaurant in Eagle, Colorado.

Chapter 51

Polysyllogism

Not to be confused with **Polylogism**.

A **polysyllogism** (also called **multi-premise syllogism**, **sorites**, **climax**, or **gradatio**) is a string of any number of **propositions** forming together a sequence of **syllogisms** such that the conclusion of each syllogism, together with the next proposition, is a premise for the next, and so on. Each constituent syllogism is called a **prosyllogism** except the very last, because the conclusion of the last syllogism is not a premise for another syllogism.

51.1 Example

An example for a polysyllogism is:

It is raining.
If we go out while it is raining we will get wet.
If we get wet, we will get cold.
Therefore, if we go out we will get cold.

Examination of the structure of the argument reveals the following sequence of constituent (pro)syllogisms:

It is raining.
If we go out while it is raining we will get wet.
Therefore, if we go out we will get wet.

If we go out we will get wet.
If we get wet, we will get cold.
Therefore, if we go out we will get cold.

51.2 Sorites

A **sorites** is a specific kind of polysyllogism in which the predicate of each proposition is the subject of the next premise. Example:

All lions are big cats.
All big cats are predators.
All predators are carnivores.
Therefore, all lions are carnivores.

The word “sorites” /sɒˈraɪtiːz/ comes from Ancient Greek: σωρίτης, “heaped up”, from σωρός “heap” or “pile”. In other words, a sorites is a heap of propositions chained together. A sorites polysyllogism should not be confused with the **sorites paradox**, a.k.a. fallacy of the heap.

Lewis Carroll uses sorites in his book *Symbolic Logic* (1896). Here is an example:^[1]

No experienced person is incompetent;
 Jenkins is always blundering;
 No competent person is always blundering.
 ∴ Jenkins is inexperienced.

Carroll's example may be translated thus

All experienced persons are competent persons.
 No competent persons are blunderers.
 Jenkins is a blunderer.
 ∴ Jenkins is not an experienced person.

51.3 See also

- **Anadiplosis** - the rhetorical grounds of polysyllogism.
- **Transitive relation**

51.4 References

- B. P. Bairan. *An Introduction to Syllogistic Logic*. Goodwill Trading. p. 342. ISBN 971-574-094-4.

[1] p.113

Chapter 52

Post-classical history

Post-classical history (also called the **Postclassical Era**)* [1]* [2]* [3] is the period of time that immediately followed **ancient history**. Depending on the continent, the era generally falls between the years AD 200-600 and AD 1200–1500. The major classical civilizations the era follows are **Han China** (ending in 220), the **Western Roman Empire** (in 476), the **Gupta Empire** (in the 550s), and the **Sasanian Empire** (in 651). The post-classical era itself was followed by the **early modern era**, and forms the middle period in a three-period division of world history: **ancient**, post-classical, and **modern**. The era is thought to be characterized by invasions from Central Asia, the development of the great world religions (Christianity, Islam, and Buddhism), and of networks of trade and military contact between civilizations.* [4]

The name of this era of **history** derives from **classical antiquity** (or the Greco-Roman era) of Europe.* [5] In European history, “post-classical” is synonymous with the medieval time or **Middle Ages**, the period of **history** from around the 5th century to the 15th century.* [6] In Europe, the fall of the **Western Roman Empire** saw the depopulation, deurbanization, and limited learning of the “**Dark Ages**” (except in Eastern Mediterranean Europe, where the **Eastern Roman Empire** flourished until 1204), but gradually revived somewhat under the institutions of **feudalism** and a powerful **Catholic Church**. Art and architecture were characterized by **Christian** themes. Several attempts by the **Crusades** to recapture the **Holy Land** for Christianity were unsuccessful.

In Asia, the depredations of the Dark Ages were avoided, at least in the **west**, where the **Spread of Islam** created a new empire and civilization with trade between the **Asian**, **African**, and **European** continents, and **advances in science**. **East Asia** experienced the full establishment of power of **Imperial China** (after the interregnum chaos of the **Six Dynasties**), which established several prosperous dynasties influencing Korea, Vietnam, and Japan. Religions such as **Buddhism** and **Neo-Confucianism** spread. Gunpowder was originally developed in China during the post-classical era. The invention of gunpowder led to the invention of fireworks, then to its use in warfare. Also, the invention spread around the world. The **Mongol Empire** greatly affected much of Europe and Asia, the latter of which was conquered in many areas. The Mongols were able to create safe trade and stability between the two regions, but inadvertently encouraged the spread of the **Black Plague**.

The timelines of the major civilizations of the **Americas**—**Maya** (AD 250 to 900), the **Aztec** (14th to 16th centuries), and the **Inca** (1438 to 1533)—do not correspond closely to the Classical Age of the Old World.

Outstanding cultural achievement in the post-classical era include books like the *Code of Justinian*, *The Story of the Western Wing*, and *The Tale of Genji*; the mathematics of **Fibonacci**, **Oresme**, and **Al-Khwārizmī**; the philosophy of **Avicenna**, **Thomas Aquinas**, **Petrarch**, **Zhu Xi**, and **Kabir**; the painting of **Giotto**, **Behzād**, and **Dong Yuan**; the astronomy of **Nasir al-Din al-Tusi** and **Su Song**; the poetry of **Rumi**, **Dante**, **Chaucer**, and the **Li Bai**; the travels of **Marco Polo** and **Ibn Battuta**; the historiography of **Leonardo Bruni** and **Ibn Khaldun**; and the architecture of places like **Chartres**, the **Mezquita**, **Angkor Wat**, and **Machu Picchu**.

52.1 Etymology and periodization

Main article: **Universal history**

The post-classical era, which is the Middle Ages, is one of the three major periods in the most enduring scheme for

analyzing history: ancient history, post-classical history, and modern history.* [7] In Europe, it is called the "Middle Ages" in the sense of being between the two other periods in time, ancient times and modern times. Humanist historians argued that Renaissance scholarship restored direct links to the classical period, thus bypassing the Medieval period. The term first appears in Latin in 1469 as *media tempestas* (middle times).* [8] In early usage, there were many variants, including *medium aevum* (Middle Age), first recorded in 1604,* [8] and *media saecula* (Middle Ages), first recorded in 1625.* [9] English is the only major language that retains the plural form.* [9]

See also: Periodization

52.1.1 Development of concept

Medieval historians did not, of course, think of themselves as being in the middle of history. Instead, they wrote history from a universal and theological perspective. They divided history into periods such as the "Six Ages" or the "Four Empires", with the present period being the last before the end of the world. They considered the Roman period, especially the time of the Apostles, a historical peak, followed by a long slide toward the Apocalypse.* [10]

In the 1330s, the humanist and poet Petrarch referred to pre-Christian times as *antiqua* (ancient) and to the Christian period as *nova* (new).* [10] While retaining the theme of decline from the apogee of ancient Rome, Petrarch's division was not based on theology, but on a perception of cultural and political decline, especially the idea that Medieval Latin was inferior to Classical Latin.* [11] From Petrarch's Italian perspective, this new period (which included his own time) was an age of national eclipse.* [11]

Leonardo Bruni was the first historian to use tripartite periodization in his *History of the Florentine People* (1442).* [12] Bruni's first two periods were based on those of Petrarch, but he added a third period because he believed that Italy was no longer in a state of decline. Flavio Biondo used a similar framework in *Decades of History from the Deterioration of the Roman Empire* (1439–1453). Tripartite periodization became standard after the German historian Christoph Cellarius published *Universal History Divided into an Ancient, Medieval, and New Period* (1683).

52.1.2 Start and end dates

The most commonly given start date for the Middle Ages is 476,* [13] a date first given by Bruni.* [12] This was when Romulus Augustus, the last Roman emperor in the West, abdicated. The western empire had already lost its military power by this time and Romulus Augustus was only a puppet emperor, so many historians object that this convention ascribes undue significance to an arbitrary year. In contrast, Biondo used the sack of Rome in 410 by the Goths as the beginning of the period.* [10] In the history of Scandinavia, the Middle Ages followed prehistory during the 11th century, when the rulers converted to Christianity and substantial written records began to appear. A similar shift from prehistory to the Middle Ages occurred in Estonia and Latvia during the 13th century. Additionally, as the fall of major civilizations is a major point for historians to end a period, the fall of the Han Dynasty of China in AD 220 as well as the Gupta Empire of India in AD 550 offer different perspectives.

For Europe as a whole, the conquest of Constantinople by the Turks in 1453 is commonly used as the end date of the Middle Ages. Depending on the context, other events, such as the invention of the moveable type printing press by Johann Gutenberg c. 1455, the fall of Muslim Spain or Christopher Columbus's voyage to America (both 1492), can be used. For Italy, 1401, the year the contract was awarded to build the north doors of the Florence Baptistery, is often used. In contrast, English historians often use the Battle of Bosworth Field (1485) to mark the end of the period.* [14] For Spain, the death of King Ferdinand II (1516) is used.* [15]

52.1.3 Subdivisions

Historians in the Romance languages tend to divide the Middle Ages into two parts: an earlier "High" and later "Low" period. English-speaking historians, following their German counterparts, generally subdivide the Middle Ages into three intervals: "Early", "High" and "Late".* [7] Belgian historian Henri Pirenne and Dutch historian Johan Huizinga popularized the following subdivisions in the early 20th century: the Early Middle Ages (476–1000), the High Middle Ages (1000–1300), and the Late Middle Ages (1300–1453).



Leonardo Bruni was a Renaissance historian who helped develop the concept of the Middle Ages.

52.1.4 Timeline

Dates are approximate range (based upon influence), consult particular article for details

Middle Ages Divisions, Middle Ages Themes Other



Richard III, England's last Medieval monarch

52.2 Main trends

The Postclassical Era drastically changed the world from what was the Classical civilizations to the Modern Period, and thus experienced several important developments and trends that directed the world into becoming what it is

today.

First, there was the expansion and growth of civilization into new areas across Asia, Africa, Europe, Mesoamerica, and western South America. In Asia, we saw that China continued its historic dynastic cycle and became more complex, improving its bureaucracy. Places like Japan, Vietnam, Korea, and India continued to develop their own societies as well. The creation of the Islamic Empires established a new power in the Middle East, North Africa, and Central Asia. Africa created the Songhai and Mali kingdoms in the West. The fall of Roman civilization not only left a power vacuum for the Mediterranean and Europe, but forced certain areas to build what some historians might call new civilizations entirely. * [16] An entirely different political system was applied in Western Europe (i.e. feudalism), as well as a different society (i.e. manorialism), and there was the general loss of many past scientific and technological innovations, one of the most prominent being aqueducts. But the once East Roman Empire, Byzantium, retained many features of old Rome, as well as Greek and Persian similarities. Kiev Rus' and subsequently Russia began development in Eastern Europe as well. In the isolated Americas, Mesoamerica saw the building of the Aztec Empire, while the Andean region of South America saw the establishment of the Inca Empire.

The growth and geographical spread of major world religions also occurred, with Islam being the most successful religion during this time. Christianity continued its spread into Scandinavia, the Baltic area, and the British Isles—ousting the old pagan religions; * [17] an attempt was even made to incur upon the Middle East during the Crusades. The split of the Catholic Church in Western Europe and the Orthodox Church in Eastern Europe encouraged religious and cultural diversity in Eurasia as well. Additionally, Buddhism spread from India into China and flourished there briefly before using it as a hub to spread to Japan, Korea, and Vietnam; * [18] a similar effect occurred with Confucian revivalism in the later centuries. Once again, however, the most prominent world religion at the time was Islam. Starting in the Arabian Peninsula, it unified the warring Bedouin clans and through conquest, trade, and missionaries, spread to Persia, Indonesia, Central Asia, India, North Africa, and the Iberian Peninsula.

Finally, communication and trade all across Afro-Eurasia increased rapidly. The Silk Road continued to spread cultures and ideas through trade and throughout Europe, Asia, and Africa. Trade networks were established between West Europe, Byzantium, early Russia, the Islamic Empires, and the Far Eastern civilizations. The Islamic Empires adopted many Greek, Roman, and Indian advances and spread them through the Islamic sphere of influence, allowing these developments to reach Europe, North and West Africa, and Central Asia. Islamic sea trade helped connect these areas, including those in the Indian Ocean and in the Mediterranean, replacing Byzantium in the latter region. The Christian Crusades into the Middle East (as well as Muslim Spain and Sicily) brought Islamic science, technology, and goods to Western Europe. * [17] Western trade into East Asia was pioneered by Marco Polo. Importantly, China began the sinicization (or Chinese influence) of regions like Japan, * [18] Korea, and Vietnam through trade and conquest. Finally, the growth of the Mongol Empire in Central Asia established such safe trade as to allow goods, cultures, ideas, and disease spread between Asia, Europe, and Africa.

52.3 Europe

Main article: Middle Ages

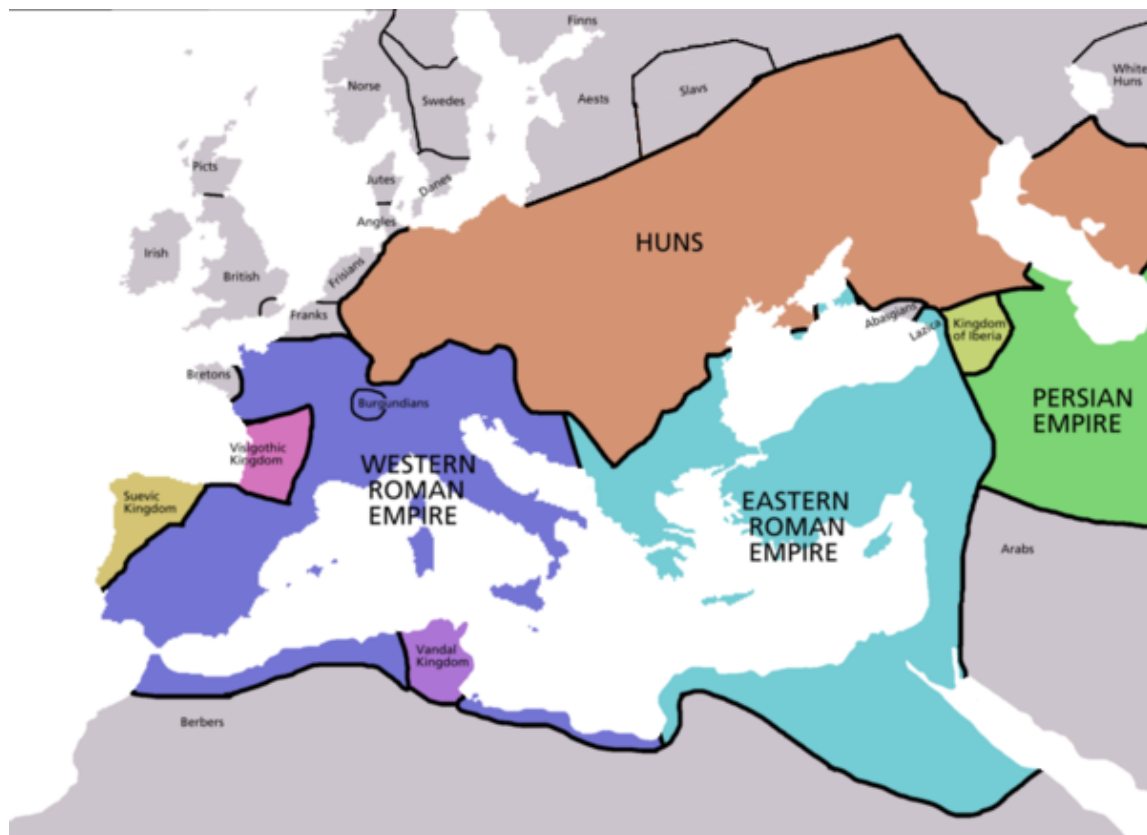
In Europe, a new form of Western civilization was reconstructed after the fall of the Western Roman Empire which plunged it into the Dark Ages; during this time the area was generally controlled by the Catholic Church. The Early Middle Ages saw the continuation of trends set in Late Antiquity: depopulation, deurbanization, and increased barbarian invasion. In Eastern Europe, the Eastern Roman Empire survived as what is now called the Byzantine Empire. Ruled by a religious Christian Orthodox emperor, Byzantium flourished as the leading power and trade center in its region until it was overshadowed by the Islamic Empires. Later in the period, the establishment of the feudal system allowed a return to systemic agriculture. There was sustained urbanization in northern and western Europe. Their later developments were marked by manorialism and feudalism, and evolved into the prosperous High Middle Ages. During the High Middle Ages (c. 1000–1300), Christian-oriented art and architecture flourished and Crusades were mounted to recapture the Holy Land from Muslim control. The influence of the emerging nation-state was tempered by the ideal of an international Christendom. The codes of chivalry and courtly love set rules for proper behavior, while the Scholastic philosophers attempted to reconcile faith and reason. This time would be a major underlying cause for the Renaissance.

The term “Middle Ages” first appears in Latin in the 15th century and reflects the view that this period was a deviation from the path of classical learning, a path supposedly reconnected by Renaissance scholarship.

52.3.1 The later Roman Empire

Main articles: [Late Antiquity](#), [Decline of the Roman Empire](#), [Migration Period](#) and [Byzantine Empire](#)

The Roman empire reached its greatest territorial extent during the 2nd century. The following two centuries wit-



Map of territorial boundaries ca. 450 AD

nessed the slow decline of Roman control over its outlying territories. The Emperor Diocletian split the empire into separately administered eastern and western halves in AD 286. The division between east and west was encouraged by Constantine, who refounded the city of *Byzantium* as the new capital, *Constantinople*, in 330.

Military expenses increased steadily during the 4th century, even as Rome's neighbours became restless and increasingly powerful. Tribes who previously had contact with the Romans as trading partners, rivals, or mercenaries had sought entrance to the empire and access to its wealth throughout the 4th century.

Diocletian's reforms had created a strong governmental bureaucracy, reformed taxation, and strengthened the army.*[19] These reforms bought the Empire time, but they demanded money. Roman power had been maintained by its well-trained and equipped armies. These armies, however, were a constant drain on the Empire's finances. As warfare became more dependent on heavy cavalry, the infantry-based Roman military started to lose its advantage against its rivals. The defeat in 378 at the *Battle of Adrianople*, at the hands of mounted Gothic lancers, destroyed much of the Roman army and left the western empire undefended.*[19] Without a strong army, the empire was forced to accommodate the large numbers of *Germanic tribes* who sought refuge within its frontiers.

Known in traditional historiography collectively as the “barbarian invasions”, the *Migration Period*, or the *Völkerwanderung* (“wandering of the peoples”), this migration was a complicated and gradual process. Some of these “barbarian” tribes rejected the classical culture of Rome, while others admired and aspired to emulate it. In return for land to farm and, in some regions, the right to collect tax revenues for the state, *federated tribes* provided military support to the empire. Other incursions were small-scale military invasions of tribal groups assembled to gather plunder. The *Huns*, *Bulgars*, *Avars*, and *Magyars* all raided the Empire's territories and terrorised its inhabitants. Later, *Slavic* and Germanic peoples would settle the lands previously taken by these tribes. The most famous invasion culminated in the *sack of Rome* by the *Visigoths* in 410, the first time in almost 800 years that Rome had fallen to an enemy.

By the end of the 5th century, Roman institutions were crumbling. Some early historians have given this period of

societal collapse the epithet of "Dark Ages" because of the contrast to earlier times, (however, the term is avoided by current historians). The last emperor of the west, **Romulus Augustulus**, was deposed by the barbarian king **Odoacer** in 476.*[19] The **Eastern Roman Empire** (conventionally referred to as the "**Byzantine Empire**" after the fall of its western counterpart) had little ability to assert control over the lost western territories. Even though **Byzantine emperors** maintained a claim over the territory, and no "barbarian" king dared to elevate himself to the position of Emperor of the west, Byzantine control of most of the West could not be sustained; the *renovatio imperii* ("imperial restoration", entailing reconquest of the **Italian peninsula** and Mediterranean periphery) by **Justinian** was the sole, and temporary, exception.

As Roman authority disappeared in the west, cities, literacy, trading networks and urban infrastructure declined. Where civic functions and infrastructure were maintained, it was mainly by the Christian Church. **Augustine of Hippo** is an example of one **bishop** who became a capable civic administrator.

52.3.2 Western

Breakdown of Roman society

The breakdown of Roman society was dramatic. The patchwork of petty rulers was incapable of supporting the depth of civic infrastructure required to maintain libraries, public baths, arenas, and major educational institutions. Any new building was on a far smaller scale than before. The social effects of the fracture of the Roman state were manifold. Cities and merchants lost the economic benefits of safe conditions for trade and manufacture, and intellectual development suffered from the loss of a unified cultural and educational milieu of far-ranging connections.

As it became unsafe to travel or carry goods over any distance, there was a collapse in trade and manufacture for export. The major industries that depended on long-distance trade, such as large-scale pottery manufacture, vanished almost overnight in places like Britain. Whereas sites like **Tintagel** in **Cornwall** (the extreme southwest of modern-day England) had managed to obtain supplies of Mediterranean **luxury goods** well into the 6th century, this connection was now lost.

Between the 5th and 8th centuries, new peoples and powerful individuals filled the political void left by Roman centralized government. Germanic tribes established regional hegemonies within the former boundaries of the Empire, creating divided, decentralized kingdoms like those of the **Ostrogoths** in Italy, the **Suevi** in Gallaecia, the **Visigoths** in Hispania, the **Franks** and **Burgundians** in Gaul and western Germany, the **Angles** and the **Saxons** in Britain, and the **Vandals** in North Africa.

Roman landholders beyond the confines of **city walls** were also vulnerable to extreme changes, and they could not simply pack up their land and move elsewhere. Some were dispossessed and fled to Byzantine regions; others quickly pledged their allegiances to their new rulers. In areas like Spain and Italy, this often meant little more than acknowledging a new overlord, while Roman forms of law and religion could be maintained. In other areas, where there was a greater weight of population movement, it might be necessary to adopt new modes of dress, language, and custom.

The **Muslim conquests** of the 7th and 8th centuries of the **Persian Empire**, **Roman Syria**, **Roman Egypt**, **Roman North Africa**, **Visigothic Spain**, **Sicily** and **southern Italy** eroded the area of the Roman Empire and controlled strategic areas of the Mediterranean. By the end of the 8th century, the former Western Roman Empire was decentralized and overwhelmingly rural.

Early Middle Ages

Main article: **Early Middle Ages**

After the fall of the classical western empires (in this case the Roman Empire), independent civilizations soon arose to fill the power vacuum.*[20] This was the beginning of the **Early Middle Ages**, a dark period lasting from around AD 400 to AD 1000 and characterized by its stagnant culture, economy, and science as well as its declining population size. In 413, the Romans had lost control of the Franks, and the latter established **Francia** (also known as the Frankish Kingdom), a precursor to modern-day **France** and **Germany**. In 449, the **British Isles** were invaded by the **Anglo-Saxons**,*[21] who would fully control the region for the next six hundred years; although this would consist of small and divided kingdoms collectively known as the **Heptarchy**. Once **Clovis I** of the **Merovingian dynasty** was crowned king of Francia in 481, he expanded the kingdom to much of France's current region (although it would quickly split amongst his sons). The **Iberian Peninsula** (modern-day Spain and Portugal) was ruled by the **Visigoths** during this

period, establishing the **Visigothic Kingdom**. In Italy, the immediate replacement of the Western Roman Empire was a kingdom led by the Germanic soldier **Odoacer**. This king would soon be killed and replaced by **Theodoric the Great** in 493, who instead established the **Ostrogothic Kingdom**. Then, in 553 the Byzantine Empire under Justinian I took back Italy for the “Romans.” Finally, the Germanic **Kingdom of the Lombards** captured most of Italy from the Byzantines in 568.



14th century miniature of serfs harvesting wheat with reaping-hooks.

The first development of medieval Western Europe was the establishment of a new society to replace the Roman one. A lack of trade and therefore nearly nonexistent market economy caused this new “civilization” to be land-based, meaning wealth was determined by how much land one owned. This facilitated the use of the **manorial system**, something developed in the late Roman Empire. Manorialism utilized workers called **serfs** who would be bound to the land they farmed and have to pay tribute to aristocratic lords who owned the large regions these serfs inhabited. Serfs were different from slaves in that they couldn't be bought and sold and they had inheritance rights to their houses and lands. The serfs could continue farming their lord's land and receive protection as long as they gave a portion of their goods to their lord.

Another major institution was the **Catholic Church**, a driving force in West European politics and the only immediate organization left after the fall of the Romans. A hierarchy was utilized that put the **Pope** at the head, followed by **bishops**, and then **priests**. The Church spread Christianity northward, converting **pagans** in Germany and Scandinavia.*[22] By 597, missionaries arrived in England.*[23] Conversion was just as often a political choice as a spiritual one: Clovis I's conversion in 496 gave him greater respect than pagan chieftains, helping him assert power over the Franks. The eventual ubiquity of Christianity in Europe helped unify Europeans slightly. Another important institution of the Church were monasteries. **Saint Benedict's book of precepts** for monks, written in the early 6th century, was fundamental in establishing West European monasticism. The widespread nature of monasteries improved education, cultivation, and spirituality amongst the peasantry and elite. Nevertheless, very little new education or culture developed in the earlier centuries, with science and literature confined to Catholic monks who simply copied older manuscripts.*[22] The power of the Church would become even more official in the formation of the **Papal States** in 754, which allowed the Pope direct rule over much of central Italy. This came to be through cooperation between Charlemagne of Francia and the Pope, the former of which had conquered northern Italy from the Lombards and thus had the power to affect who would rule in other parts of Italy.

Power struggles began to shift in the 8th century. Francia grew in power during the early 700s, caused partly by the new family in charge, the **Carolingian dynasty**; their rule covered France, the **Low Countries**, and western Germany. In 711, the Umayyad Empire of the Middle East invaded Iberia from **Maghreb** and conquered the Visigothic kingdom, establishing the Moorish territory of **Al-Andalus**. The remaining Visigoths formed the **Kingdom of Asturias** in the northwest. Expansion into Europe was halted by Carolingian **Charles Martel** during the **Battle of Tours** in 732, a victory at least partly due to the Arabs' overextension. The fall of the Umayyad Caliphate in the Middle East saw

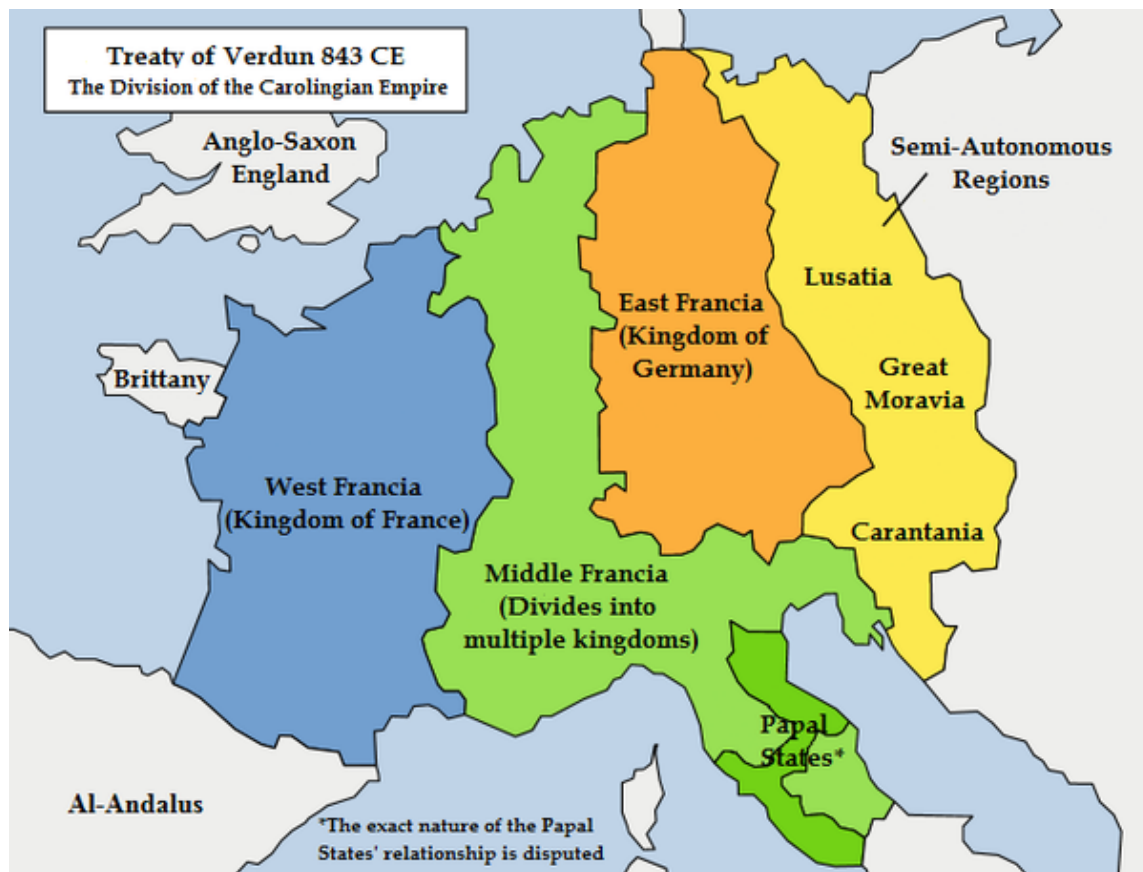


French painting by Charles de Steuben of Charles Martel in the Battle of Tours.

most of the Umayyad family killed. Only one leader was left, **Abd al-Rahman I**, who fled to Al-Andalus and created the independent **Emirate of Córdoba** in 755.* [24] Rahman claimed himself **emir**, a Muslim monarch equivalent to a prince in that an emirate was equivalent to a **principality**. Since the first Umayyad conquest, the **jizya** was used — a tax for all non-Muslims. This was continued with the Umayyad Emirate. A tolerance for Christians and Jews also existed that occasionally extended to intermarriage.* [24]

By the late 700s **Viking expansion** appeared. The migrations of Scandinavian merchants and pirates both prospered in and ravaged several parts of Europe in a period known as the **Viking Age**. While the raids of these so-called “barbarians” may have had destructive short-term effects, Vikings established ports and villages that would grow into towns and cities, catalyzing medieval urban life. In 768, **Charlemagne** of the Carolingians was crowned king of the Franks. An extremely adept ruler, he gained large amounts of territory in Germany and northern Italy (pushing out the Lombards), unifying much of Western Europe under the **Carolingian Empire**.* [25] Charlemagne also helped spread the use of **Carolingian minuscule**, the basis for writing today, which introduced such recognizable features as separating individual words and capitalizing beginnings of sentences. It was allegedly perfected in 780 and extremely efficient for copying manuscripts, helping spread information to a certain degree.* [26] In 800, **Pope Leo III** crowned Charlemagne emperor (a precursor for **Holy Roman Emperor**), and his empire nearly revived a Roman equivalent.

However, Charlemagne's death would divide the empire under his sons according to the **Treaty of Verdun** in 843.* [25] This established **West Francia**, which would quickly grow into the **Kingdom of France**; **East Francia**, which would become the **Kingdom of Germany**; and **Middle Francia**, which would divide into smaller kingdoms covering the **Low Countries**, Switzerland, and other disputed areas between Germany and France. Northern Italy and the Papal States would become satellite states to the Kingdom of Germany, and the remainder of Italy would divide among various principalities and Byzantine holdings. Nevertheless, Charlemagne helped found **feudalism** in Western Europe. The feudal system made it so that a single king could claim authority over multiple lords, forming a unified kingdom, so long as those lords stayed loyal to him. This would allow smaller kingdoms to develop after the fall of the Carolingian Empire.



The division of the Carolingian Empire after the Treaty of Verdun in 843.

As the 900s came around, Europe began to flourish again. Technological advancements came about such as **crop rotation**, which developed from a two-field system to a three-field system. This meant that instead of leaving half of their fields alone to regain nutrients over the year, serf farmers left a third. Additionally, the application of the **moldboard plow** in the 9th century helped cultivation. With Vikings beginning to settle down (a prime example can be seen in the **Duchy of Normandy**), their long-term effects began to be felt. Additionally, trade began start again, the population grew, and urban as well as agricultural expansion occurred. Merchants and craftsmen reappeared, and cathedral-based schools began to spread.* [27] In England, the gradual unification of the small Anglo-Saxon kingdoms into the **Kingdom of England** was completed in 927 by King **Æthelstan**. King **Otto I** of Germany was crowned as the first legitimate Holy Roman Emperor in 962 by the Pope, this time establishing the **Holy Roman Empire**. This basically comprised the same state as the Kingdom of Germany, only with some extra holdings such as northern Italy.

Despite the gradual unification seen in England, France, and Germany, there was still significant decentralization. This was due in part to feudalism which, while considering the king liege, still required that his authority come from the aristocracy or subordinate princes. In England and France, there was a constant battle between the king and the nobility to gain more power than the other. In Germany, the situation was even less controllable: the German king or Holy Roman Emperor generally had little control over the tremendous number of duchies and principalities in the German region. Usually he could only demand something of these states if he had the army to back it up. These kinds of conflicts can be seen for centuries after the Middle Ages.

High Middle Ages

Main article: [High Middle Ages](#)

The war-like nature and bloodline of the Vikings would also create great warriors of Europe. This would kick off the glorious **High Middle Ages**, a period of medieval prosperity from about 1000 to 1300. One of the most famous examples of these warriors was **William the Conqueror of Normandy**. William would go on to **conquer England** in 1066 and help establish a feudal kingdom there.* [20] With expansionist impulses running high, the Holy Roman Empire assimilated certain regions into its territory, expanding from the Kingdom of Germany to the **Kingdom of**



The Great helm of Hans Rieter from 1350, displayed in the Germanic National Museum in Nuremberg.

Poland, the Duchy of Bohemia, the Kingdom of the Lombards (Italy), and the Second Kingdom of Burgundy by 1050. The sudden revival of Muslim invasions by the Seljuq Turks in Anatolia (now Turkey), caused Pope Urban II to launch the first of the Crusades in 1096. The Christian Reconquista of Iberia from the Muslim state Al-Andalus intensifies and the second and third crusades occur with failure and relative success, respectively. One major break in this line of monarchic successes, however, is the uprising of English barons against King John of England's fiscal policies and treatment of the nobility after an unsuccessful war against Normandy, resulting in the signing of the Magna Carta in 1215, limiting the King's power and setting a precedent for years to come. Six more crusades would bring Muslim treasures, scientific advances, and other influences until the Ninth Crusade and the fall of Acre in 1272.

Late Middle Ages

Main article: [Late Middle Ages](#)

Then with arrival of year 1300, prosperity suddenly slowed. The Late Middle Ages began, marked by several hardships and tragedies from 1300 to 1500. The Western Schism of the Catholic church occurred around this time, caused by two men both claiming the title of pope in 1378. Although it was resolved in 1417, the scandal damaged the reputation of the papacy. The Hundred Years' War between England and France over territorial disputes in 1337, also started in this period and brought to fame Joan of Arc. The war would add to the many famines already occurring due to overpopulation.*[28] Epidemics also began to spread, including the infamous Black Death, which began to spread throughout Europe in 1347, as a direct result of increased trade between Europe and Asia due to the Mongol Empire's secured travel and their catapulting of infected corpses into besieged cities. Ships coming from the Crimea put into port at Messina, Sicily in early October 1347, bringing with them rats in their cargo.*[29] These rodents carried fleas infected with the bacillus *Yersinia pestis* in the form of the bubonic plague. The disease cut the European population by 30 to 60 percent —killing between 75 to 200 million people.*[30]

However, the aftermath of these issues would lead to a cultural and scientific revival, the Renaissance. The significantly decreased population from the black plague allowed for a greater relative supply of food for the people and higher wages for farmers, ending manorialism and popularizing the use of tenant farmers.*[28] Additionally, the invention of the printing press by Johannes Gutenberg in 1450 revolutionized communication. The Hundred Years' War ended in 1453 —its effects would lead to the War of the Roses in England. Maritime explorers like Vasco da Gama and Christopher Columbus would receive funding from Henry the Navigator and the newfound Spanish Empire respectively.

52.3.3 Eastern

While the Western Roman Empire collapsed in the 5th century, the Eastern Roman Empire retained a stable government and was considered the only actual continuation of the original Roman Empire. The Byzantine Empire was the most powerful state in eastern Europe during the Postclassical age, dominating the Balkans. Its capital, Constantinople, was built on the old grounds of the ancient Greek city Byzantium, lending to the term Byzantine.*[31] The Byzantine Empire would last for over a thousand years, and remain the dominant force in Eastern Europe for most of that time. In contrast, the northern territories were occupied by the Slavs, who had formed small kingdoms and principalities even before the fall of the Romans.

Byzantine Society and Culture

Since its beginnings, Constantinople and the Byzantines were ruled by a simultaneously political and religious emperor.*[32] The emperor was surrounded by extravagant ceremonies and considered to have had divine kingship. The government used a bureaucracy that was occupied by both scholars and aristocrats, similar to China at the time. Additionally, intrigue and violent rival factions were present in politics, the latter of which often used corrupt methods such as spies to tip power in their favor.*[33]*[32] Women held a somewhat higher role in the Byzantine Empire, as evidenced by the rules of Empress Theodora, or Empress Zoe. Byzantine culture was defined by its Greek influences, stemming simply from the Empire's nearby geographical location; this was despite the fact that the Byzantines thought themselves Roman, a view shared by foreign states at the time as well.*[31] Mosaics were a significant style of Byzantine art.

At the height of its power, in 555, the Eastern Roman Empire held power over Italy, Greece, Turkey, southern Spain, and the northern coast of Africa. Byzantium also dominated the Mediterranean islands, as well as their trade in the



The Byzantine Empire at the height of its power in the 6th century. The areas in purple were conquered by Justinian I and were later lost to Western Europe and the Islamic Empires, as well the southeastern territories.

earlier centuries.* [32] This was primarily due to the military campaigns set by Emperor Justinian I.

Trade in Eastern Europe

Growing trade expanded contact between Asia, Europe, and the Middle East, effectively connecting Eurasia. Scandinavian traders (i.e. Vikings known in Eastern Europe as **Varangians**) moved into what is now eastern Russia, in the 6th and 7th centuries. The Scandinavians were militarily dominant amongst the local Slavic peoples. They sailed in boats from north to south through various rivers, particularly the **Dnieper**. This led to trade with Byzantium, which had Scandinavians exchanging furs and raw materials for luxuries from both the Byzantines and, indirectly, Arabs. The latter was achieved primarily due to the heavy trade between Byzantium and the Middle East; this developed into a rivalry as the Islamic Empires' power grew. The rivalry was especially focused on control of the **Silk Road**, which facilitated trade from East Asia — an important source of goods. In later centuries, the **Seljuqs** would take control of this route — a factor in the slow decline of the Byzantines.

East-West Schism and the Spread of Religion

It is important to note that by the beginning of the postclassical period, Christianity had become the official religion in Roman territories. However, since the 300s CE, many differences in culture, language, politics, and theology greatly contrasted the Christian clergy in Western Europe and Eastern Europe.* [34] The innate Greek culture of the Byzantines played a part in this difference: for example, Latin was considered barbaric among the Byzantines and they instead spoke Greek.* [32] Theological disputes also arose, such as what type of bread should be used in the **Eucharist**, whether priests ought to be **celibate**, and the source of the Holy Spirit, **filioque**. Rivalry between the Western Pope and the Eastern Patriarchs also contributed to the estrangement, as well as Byzantine loyalty to the **Ecumenical Patriarch** rather than the Pope, rejecting **Papal supremacy**.* [35] This eventually culminated in the **East-West Schism** which officially began in 1054 with the **excommunication** of Patriarch **Michael Cerularius** by **Cardinal Humbert**, when the Cerularius refused to submit to Rome. Cardinal Humbert was subsequently excommunicated by Michael Cerularius. The dispute would intensify until the formation of the **Eastern Orthodox Church** and the **Roman Catholic Church**, and many attempts to reunify the churches would fail.

Nevertheless, the Byzantines spread their distinct religion and culture northward as West Europeans did, building



Mosaic of Empress Zoe and Emperor Constantine IX standing beside Christ and adorned with halos.

many Christian churches and converting the Balkans peoples and the Slavs. Missionaries like Saints Cyril and Methodius, who were sent to the Czech and Slovak regions in 864, worked to assimilate the West Slavs. The two brothers created Cyrillic script based on Greek and Glagolitic characters in order to help assimilate the foreign peoples. However, rival Catholic missionaries managed to convert the Czech and Slovak regions in opposition to the Orthodox missionaries;* [32] the people in the Polish region and the Hungarian region also adopted Catholicism as their primary religion. Additionally, Jewish immigrants began to move into Eastern Europe in order to escape discrimination in the Middle East and Western Europe, adding to the religious diversity as well as local commerce, education, and literature.

Early Russia

With the influx of Varangians in the East Slavic region and the state-building of the local Slavs, the state of Kievan Rus' was eventually formed in the late 9th century. This was catalyzed by the rule of prince Rurik, who established the Rurik dynasty. The monarchy became a federation of multiple East Slavic tribes and came to cover much of what is now Ukraine and European Russia. The Rus held trade with the Byzantine Empire,* [36] the former gaining certain characteristics of the latter. Byzantine influence intensified from 867 through 1056 during the Macedonian dynasty of Byzantium.* [31] In 988, Vladimir the Great of Kiev adopted Orthodox Christianity, and began to start mass conversions that developed into the Russian Orthodox Church.

52.4 The Middle East

The Arabian peninsula and the surrounding Near East regions saw dramatic change during the Postclassical Era caused primarily by the spread of Islam and the establishment of the Arabian Empires.



Mosaic of Justinian I from before 547.

52.4.1 Pre-Islam

In the 5th century, the Middle East was separated into small, weak states; the two most prominent were the Sasanian Empire of the Persians in what is now Iran and Iraq, and the Byzantine Empire in Anatolia (modern-day Turkey). The Byzantines and Sasanians fought with each other constantly during this time. This fighting was a reflection of the rivalry between the Roman Empire and the Persian Empire seen for five hundred years already. The Byzantine-

Sasanian rivalry was also seen through their respective cultures and religions. The Byzantines considered themselves champions of **Hellenism** and Christianity. Meanwhile, the Sasanians thought themselves heroes of ancient Iranian and Semitic traditions and of the traditional Persian religion, **Zoroastrianism**.* [37]



Late 12th century plaque of Byzantine Emperor Heraclius submitting the Sasanian King Khosrau II.

The Arabian peninsula already played a role in the power struggles of the Byzantines and Sasanians at this time. While Byzantium allied itself with the **Kingdom of Aksum** in the horn of Africa, the Sasanian Empire assisted the **Himyarite Kingdom** in what is now **Yemen** (southwest Arabia). Thus the clash between the kingdoms of Aksum and Himyar in 525 displayed a higher power struggle between Byzantium and Persia for control of the **Red Sea** trade. Territorial wars soon became common, with the Byzantines and Sasanians fighting over upper **Mesopotamia** and **Armenia** and key cities that facilitated trade from Arabia, India, and China.* [37] Byzantium, as the continuation of the Eastern Roman Empire, continued control of the latter's territories in the Middle East. Since 527 CE, this included Anatolia, **Syria**, **Lebanon**, **Israel**, and **Egypt**. But in 603 the Sasanians invaded, conquering Damascus and Egypt. It was Emperor **Heraclius** who was able to repel these invasions, and in 628 he replaced the Sasanian Great King with a more docile one. But the fighting weakened both states, leaving the stage open to a new power.* [38]* [37]

The nomadic **Bedouin** tribes dominated the Arabian desert, where they worshipped **idols** and remained in small clans tied together by kinship. Urbanization and agriculture was very limited in Arabia, save for a few regions near the coast. **Mecca** and **Medina** (then called Yathrib) were two such cities that were important hubs for trade between Africa and Eurasia. This commerce was central to city-life, where most inhabitants were merchants.* [39] Nevertheless some Arabs saw it fit to migrate to the northern regions of the **Fertile Crescent**, a Persian region so named for its place between the **Tigris** and **Euphrates** rivers that offered it fertile land. This included entire tribal chiefdoms such as the **Lakhmids** in a less controlled area of the Sasanian Empire, and the **Ghassanids** in a similar area inside of Byzantine territory; these political units of Arab origin offered a surprising stability that was rare in the region and offered Arabia further connections to the outside world. The Lakhmid capital, **Hira** was a center for Christianity and Jewish craftsmen, merchants, and farmers were common in western Arabia as were Christian monks in central Arabia. Thus

pre-Islamic Arabia was no stranger to Abrahamic religions or monotheism, for that matter.* [40]

52.4.2 Islamic Empires

Muhammad and the Rashidun Caliphate

Main articles: [Muhammad in Medina and Rashidun Caliphate](#)

Around 610, a Arabian caravan merchant from Mecca named **Muhammad** of the **Hashemite** clan (within the larger



The Prophet Muhammad in a Mosque. The artist attempted to depict Muhammad without showing any of his flesh.

Quraysh tribe) had a religious experience in which he received revelations from the **Abrahamic God**. Although these terrified him first, he slowly accepted them and began to act as messenger of these revelations which would become the holy scriptures of the **Quran**.* [41] From 613 to 630, Muhammad spread this faith (which came to be known as Islam) in the Arabian desert, starting slowly with this family and close friends and gaining many of his early converts from Christians, Jews, and other monotheists. Yet Muhammad's tribe, the Quraysh, were offended by his claim that idol-worship and paganism were sins. Because of this, the Quraysh constantly antagonized the Muslim group.

In 622, Muhammad and his followers decided to migrate to Yathrib, a town where he'd already won support; this journey came to be known as the *hijra* and as a result, Yathrib would be renamed Medina. Muhammad spent several years in Medina unifying its feuding tribes and he eventually became its political and religious authority; the Prophet

continued to fight with the Quraysh and their allies until a truce was formed in 628. The truce allowed for Muhammad to eliminate one of the Quraysh's allies, in this case the Jews; after this was done the Prophet and his followers attacked and seized Mecca in 630. They smashed the idols of the black **Kaaba** stone and reconciled with Quraysh.*[42] By Muhammad's death in 632, he had unified the tribes into an empire that controlled all of the Arabian Peninsula.*[41] This empire was ruled by a religious and political leader called the **caliph** (sometimes *Khalifa*), similar to an emperor; thus the caliph's empire would be referred to as the caliphate. After Abubakr became Caliph many tribes in the Arabian peninsula - Who had sworn allegiance to Muhammad - openly rejected the new government, attempting to free themselves (**Ridda Wars**). Some tribes were willing to swear allegiance to Abubakr on the condition that he discontinue the collection of the Zakat tax from them. Abubakr held that **Zakat** just like **Salat** (ritual worship) was an integral part of Islam and that he would not water down Islam for the whims of the People. He dispatched his armies and defeated the Apostates and Revolting tribes one by one. Eventually Bakr gained control and begun the **Rashidun Caliphate** with minimal divisions, although Ali's supporters remained dissatisfied.

The Rashidun, or "Rightly Guided" caliphs, continued expansion of the Islamic empire. Bakr's brief reign would begin the invasions of the Sasanians and the Byzantines in the surrounding territories.*[43] While the Byzantines would prevail for centuries to come, over the rule of the Rashidun caliphs the Sasanians would be completely conquered, giving the empire control over the entirety of what is now Iraq and Iran.*[41] By the 640s, the succeeding caliphs would conquer modern-day Syria, Israel, Egypt, and **Libya**. The reign of the third caliph, **Uthman ibn Affan**, would see the establishment of the Arabic navy by the then governor of Syria, **Muawiyah I**. The Arab navy soon dominated the Mediterranean, crippled the Byzantine Empire, and put it under siege for centuries to come.*[44] Uthman was often accused of favoritism towards his family the **Umayyad**, particularly by Ali-supportive groups, and was eventually killed. He would be succeeded by Ali, who would be the fourth and final caliph of the Rashidun. Although this vindicated Ali's original supporters, the selection also sparked dissent among the Umayyad clan.*[43] The controversy over Uthman's death and general anger over Ali's assumption of the throne quickly led to the **First Fitna**, the first major civil war in the Islamic caliphates. This culminated with the **Battle of Siffin** in 657, causing the **Shia-Sunni split** —a gradual rift between two groups of Muslims that remains important to this day.*[45] The **Sunni** believe that Abu Bakr, Muhammad's father-in-law, was the rightful successor to Muhammad. The **Shia** believe it was Ali, Muhammad cousin and son-in-law. Ali's quick decline in popularity lead to his murder in 661. Although his son **Hasan** was eventually selected caliph by the Shia, the Sunni Muawiyah had already been recognized caliph a year prior.*[43] Thus ended the Rashidun Caliphate, permanently placing the Shia in the minority and terminating the First Fitna.

Umayyad Caliphate

Main article: **Umayyad Caliphate**

The Umayyad family shared an **ancestor** with Muhammad, yet once were his enemies as well as a former clan of idol-worshippers. Muawiyah I, a member of the family, claimed the new caliphate in 661. The Umayyad were centered at their capital, **Damascus**, in what's now Syria. With the Umayyad came more conquest, giving them rule over central Asia, most of northern **Africa**. From there, North Africans (i.e. **moors**) under command of the Umayyads conquered the **Iberian Peninsula** (modern-day **Spain** and **Portugal**); this Muslim territory was known as **Al-Andalus**. Little conversion occurred at this time due to the disrespect non-Arab Muslims, or **mawali**, received from the Umayyad. **Christians** and **Jews** were treated with more respect as **dhimmi**, specifically the '**Ahl al-Kitāb** or "people of the book," referring to the **Bible** which they all shared. However, as all non-Muslims, they were charged the **jizya**, a heavy tax for this purpose. During the Umayyad age, women's position also improved from that of pre-Islamic Arabia; Muhammad's teachings banned adultery, encouraged marriage and kindness to wives and daughters, and proclaimed equality of women and men "in the eyes of God."*[46]

The Umayyad Empire began to decline in the early 700's when its leaders became more and more detached from their people. Decadence was extremely common in the Umayyad court, with leaders neglecting their duties and overspending government funds on personal luxuries. This contrasted Muhammad and the earlier caliphs' simple, economical lifestyle. The frontier warriors who had fought for Umayyad conquest were particularly upset at the government. These soldiers had been promised treasures and a life of luxury but were neglected and the loot from their campaigns were relegated to the government.*[46] The Umayyad mistreatment of the mawali and Shia added to the number upset people in the empire. A new political group, the Abbasid clan, came on to the scene and allied themselves with these aforementioned upset groups; they started a movement to overthrow the Umayyad, which resulted in a revolution in 747. The Abbasids gained control of Persia by 749 and in the next year the Umayyad were defeated during the **Battle of the Zab**.*[41] The remaining Umayyad nobles fled to Iberia (Spain and Portugal), and

established the independent, Umayyad **Emirate of Córdoba** in Al-Andalus.

Abbasid Caliphate

Main article: **Abbasid Caliphate**

Once the Abbasids were established as rulers they severed their ties with the Shia and the Sunni government was



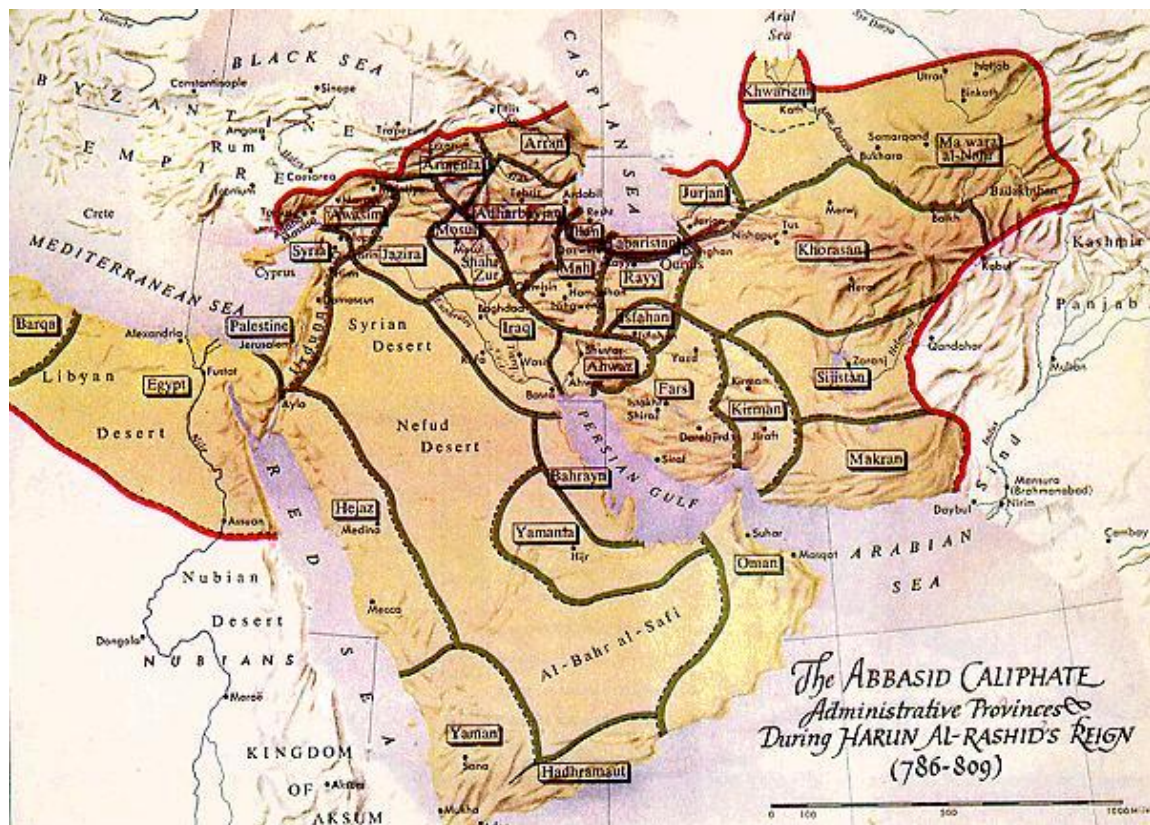
The Abbasid Empire at its greatest extent

continued. The mawali received their due course, however, and conversions to Islam boomed in this time.*[47]

The Abbasids moved their capital to **Baghdad** in Iraq in 762 to better centralize their empire. With this came the application of certain Persian influences. This included the creation of an absolute monarchy, which ruled without question. As well as an improved bureaucracy, led by the **wazir** who took most of the political and administrative responsibilities the caliph previously had.*[48] Increasing adoption of Persian traditions also started a decline in the position of women. Soon the **harem** and **veil** were introduced, forcing many Middle Eastern women to become more secluded. The effects were especially felt in upper-classes, with some independence left in the peasantry. Wealthy women would become completely domestic, often forced to remain in a harem for most of the day, while peasant women would still have certain occupations, such as selling wares, farming, or weaving. Additionally, **concubines** were often better educated and more skillful than the actual wives of royalty. Many were highly valued for their beauty and intelligence, were respected, and didn't wear veils. Many concubines were even treated better and more socialized with than the wives.*[47]

The Abbasid also experienced a boom in trade, specifically that at sea. The introduction of the **dhow** ship continued expansion, first by sending merchants and missionaries to **India** and **Southeast Asia**. Eventually conflict would arise due to a piracy issue in India, and the Abbasid would begin to conquer the western area of India which they traded with. The first expedition was led by **Turkish** general **Qutb-ud-din Aybak** and established the **Mamluk Sultanate** of India in 1206, ruled by the sultan. Aybak was a **mamluk**, an aristocratic slave-soldier, thus giving the name "Mamluk" Sultanate.

However, the Abbasid government soon fell to the same vices as the Umayyad; decadence became common in court again. Different factions in the royal court would fight for power, especially various groups of Persians and **Turkic peoples**. Such a cycle of rise and decline was noted by **Ibn Khaldun** in the *Muqaddimah* as beginning with the conquests and prosperity of warrior-leaders reminiscent of the old Bedouin tribes, and ending with the later generations who had forgotten their old rough traditions and had become self-indulgent. The caliph began to rely on advisors from wealthy families, which would sometimes render him a mere puppet.*[49] **Harun al-Rashid**, while not to this extent, relied heavily on Persian advisors. By his rule, territories were lost in western North Africa and thoughts of



The Abbasid Caliphate during the rule of Harun al-Rashid (786-809).

independence boiled amongst its remnants. Al-Rashid resorted to allowing the governor Ibrahim I ibn al-Aghlab be recognized as emir of Ifriqiya (the region roughly consisting of Tunisia), giving him nigh-independence in exchange for an annual tribute to the Abbasids in order gain some revenue; this instated the dynasty of Ifriqiya known as the Aghlabids.*[50] Upon al-Rashid's death in 809, his sons began to fight for his succession, resulting in the civil war known as the Fourth Fitna. The princes began building enslaved mercenary armies and soon lost control over these mercenaries, resulting in war and chaos. Although the mercenary slave-armies were subdued within a century, internal issues continued to arise. Taxes skyrocketed as caliphs continually moved or built entirely new capitals for their personal safety. With government spending focused on projects such as these, public infrastructure like irrigation were neglected and began to fall apart. Villages with little military protection would be plundered, resulting in dissent amongst the peasantry and uprisings often led by Shi'ites.*[47]

Busy with these internal issues, the Abbasid caliphs could only focus their policies inwards. They were soon unable to get subjugated chieftains to pay taxes to the caliph, which only worsened the state of the Abbasid government and its military. Regional and ethnic differences only compounded the problem. Soon the outer regions of the empires began to fragment and become essentially independent states, leaving the Abbasid caliph to truly rule only locally and as an unimportant figurehead in most of the empire.*[41] A prime example of the erratic losses during this time is the repeated loss of the Egyptian province to military governors. First the Tulunids took control from 868 to 905. By 935, a new group called the Ikhshidids commanded Egypt.*[50] Additionally, the territory of Armenia was neglected by both the Abbasids and Byzantines to the point where it was able to form an independent state, the Kingdom of Armenia. The biggest blow to the Abbasids, however, occurred in the early 900s. A group of Shia based in Tunisia formed the Fatimid Caliphate. They were led by Abdullah al-Mahdi Billah, often known as Ubayd Allah, who claimed himself rightful successor to Ali and established himself caliph. The Fatimids soon took most of North Africa (including Egypt) and parts of Syria as well as western Arabia (including the all-important Mecca), conquering the Aghlabids and Ikhshidids.*[41]

Meanwhile in the Abbasid center, the Persian Buyid dynasty was established in 934. The Shia government lasted only a little over a century. The Buyids were soon replaced when the growing Seljuq dynasty of the Kazakh Steppe in Central Asia migrated into Persia and converted to Islam in 985. These "Seljuq turks" would gain control over the Abbasid caliph by seizing Baghdad and create the Great Seljuq Empire. The Seljuq warriors would revive military expansion amongst the Abbasids, moving into Central Asia, Anatolia, and Jerusalem. The threat they posed to the



Christian Crusaders before Saladin in Jerusalem

Byzantine Empire forced it to request help from Western Europeans causing **Pope Urban II** to launch the **First Crusade** in 1095.*[41] Nevertheless, succession issues and the squabbling factions would continue, and the more powerful Muslim princes largely ignored the first crusade, offering limited resistance. The next eight **Crusades** would see a more determined response and succeed to varying degrees; the Seljuqs would leave Baghdad, centering themselves in Anatolia as the **Sultanate of Rum**. The Christians would lose considerable ground when the Muslims were united under **Saladin** in the late 1100s. By 1291, after the **final crusade** and the fall of **Acre**, the Christians had lost all of the territory they originally gained.*[51]

The increasingly divided regions of the Abbasid caliphate would face new challenges in the 1220s, during the invasion of the **Mongol Empire**. The Mongols were a **central Asian** nomadic people and raided much of the remaining

empire.*[52] The campaign in the Middle East was led by **Hulegu Khan**.*[53] The Seljuq Sultanate of Rum resisted Mongol invasions until their defeat at the **Battle of Köse Dağ**; from then on the Seljuqs were vassals to the Mongols.*[54] Meanwhile, Hulegu would complete the conquest of the Abbasids with the sacking of Baghdad and the murder of the final caliph, **Al-Musta'sim**, in 1258.*[52]

52.4.3 Mongol rule

Main article: **Ilkhanate**

The conquest of Baghdad and the death of the caliph in 1258 officiated the end of the Abbasid Caliphate and annexed its territories to the **Mongol Empire**, excluding Mamluk Egypt and the majority of Arabia.*[53] The **Khagan** (or Great Khan) of the Mongol Empire, **Möngke Khan**, died in 1259, halting any further expansion by Hulegu, as he had to return to the Mongol capital **Karakorum** for the election of a new khagan. His absence resulted in the first defeat of the Mongols (by the Mamluk Egyptians) during the **Battle of Ain Jalut** in 1260.*[55] Issues began to arise when the Mongols grew increasingly unable to reach a consensus as to who to elect khagan. Additionally, societal clashing occurred between traditionalists who wished to retain their nomadic culture and Mongols moving towards sedentary agriculture. All of this led to the fragmentation of the empire in 1260.*[56] Hulegu carved out his Middle Eastern territory into the independent **Ilkhanate**, which included most of Armenia, Anatolia, Azerbaijan, Mesopotamia, and Iran.

The Mongols eventually retreated in 1335, but the chaos that ensued throughout the empire deposed the Seljuq Turks. In 1401, the region was further plagued by the Turko-Mongol, **Timur**, and his ferocious raids. By then, another group of Turks had arisen as well, the **Ottomans**. Based in **Anatolia**, by 1566 they would conquer the Iraq-Iran region, the Balkans, Greece, Byzantium, most of Egypt, most of north Africa, and parts of Arabia, unifying them under the **Ottoman Empire**. The rule of the Ottoman sultans marked the end of the Postclassical Era in the Middle East.

52.4.4 Islamic culture and science

Main articles: **Islamic culture** and **Science in the medieval Islamic world**

Religion always played a prevalent role in Middle Eastern culture, affecting learning, architecture, and the ebb and flow of cultures. When Muhammad introduced Islam, it jump-started Middle Eastern culture, inspiring achievements in **architecture**, the revival of old advances in science and technology, and the formation of a distinct way of life. Islam primarily consisted of the **five pillars of belief**, including confession of faith, the five prayers a day, to **fast** during the holy month of **Ramadan**, to pay the tax for charity (the **zakāt**), and the yearly pilgrimage to Mecca (the **hajj**). Islam also created the need for spectacularly built **mosques** which created a distinct form of architecture. Some of the more magnificent mosques include the **Al-Aqsa Mosque** and the former **Mosque of Cordoba**. Islam unified the Middle East and helped the empires there to remain stable. Missionaries and warriors spread the religion from Arabia to North and Sudanic Africa, South and Southeast Asia, and the Mesopotamia area. This created a mix of cultures, especially in Africa, and the mawali demographic. Although the mawali would experience discrimination from the Umayyad, they would gain widespread acceptance from the Abbasids and it was because of this that allowed for mass conversions in foreign areas. “People of the book” or dhimmi were always treated well; these people included Christians, Jews, **Hindus**, and **Zoroastrians**. However, the crusades started a new thinking in the Islamic empires, that non-Islamic ideas were immoral or inferior; this was primarily perpetrated by the ulama (علماء) scholars.*[57]

Arabian culture took off during the early Abbasid age, despite the prevalent political issues. Muslims saved and spread Greek advances in **medicine**, **algebra**, **geometry**, **astronomy**, **anatomy**, and **ethics** that would have been lost to the Dark Ages of Europe. The works of **Aristotle**, **Galen**, **Hippocrates**, **Ptolemy**, and **Euclid** were saved and distributed throughout the empire (and eventually into Europe) in this manner. Muslim scholars also discovered the **Indian numerical system** in their conquests of south Asia. The use of this system in Muslim trade and political institutions allowed for the eventual popularization of it around the world; this number system would be critical to the **Scientific revolution** in Europe. Muslim intellectuals would become experts in **chemistry**, **optics**, and **mapmaking** during the Abbasid Caliphate. In the arts, **Abbasid architecture** expanded upon **Umayyad architecture**, with larger and more extravagant mosques. Persian literature grew based on ethical values. Astronomy was stressed in art. Much of this learning would find its way to the West. This was especially true during the crusades, as warriors would bring back Muslim treasures, weapons, and medicinal methods.*[58]



The interior of the former mosque of Córdoba, showing its distinctive arches.

52.5 Africa

Main article: [Postclassical Africa](#)

During the Postclassical Era, [Africa](#) was both culturally and politically affected by the introduction of Islam and the Arabic empires.*[59] This was especially true in the north, the [Sudan region](#), and the east coast. However, this conversion was not complete nor uniform among different areas, and the low-level classes hardly changed their beliefs at all.*[60] Prior to the migration and conquest of Muslims into Africa, much of the continent was dominated by diverse societies of varying sizes and complexities. These were ruled by kings or councils of elders who would control their constituents in a variety of ways. Most of these peoples practiced spiritual, animistic religions. Africa was culturally separated between Saharan Africa (which consisted of [North Africa](#) and the [Sahara Desert](#)) and [Sub-Saharan Africa](#) (everything south of the Sahara). Sub-Saharan Africa was further divided into the [Sudan](#), which covered everything north of [Central Africa](#), including [West Africa](#). The area south of the Sudan was primarily occupied by the [Bantu peoples](#) who spoke the [Bantu language](#).

52.5.1 North Africa

North Africa is the combined region of [Maghreb](#) and Egypt, containing the entirety of the Saharan desert. North Africa's indigenous people consisted of the [Berbers](#), an ethnic group once commonly referred to as [Moors](#). Christian missionaries arrived in Egypt around the 1st or 2nd century,*[61] converting much of the population and creating the [Copts](#). Christian texts attribute [Mark the Evangelist](#) as the pioneer of Christianity in Egypt and Africa as a whole.

After Muhammad's success in Arabia, his followers began to spread the Islamic faith across the neighboring regions, whether by missionaries or by conquest. Egypt, for one, was successfully invaded by the Rashidun Caliphate. [Amr ibn al-As](#) commanded the invasion force and Egypt was secured by 654. From there, Rashidun forces invaded Tripoli and eventually defeated all of North Africa. North Africa was not annexed but rather was a vassal state, and it was made a part of the Islamic world as well as a useful area for trading in the [Mediterranean Sea](#). The North African



St. Mark's Coptic Orthodox Cathedral in Abbassiyah, Cairo

territory would soon split off under control of Amr, during the **First Fitna**, as Caliph Ali fought **Muawiyah I** for control of the empire.

Muawiyah's eventual success in establishing the Umayyad Empire reclaimed North Africa. Expansion was continued into Maghreb. The **Kingdom of Fez** and the city of **Sijilmasa** remained as Berber outposts resisting Arab occupation.*[62] The Umayyad soon faced rebellions from the Shia and the Abbasid family, who claimed descent from Muhammad's uncle, **Abbas ibn Abd al-Muttalib**. When the Umayyad lost power, the newfound Abbasid Empire

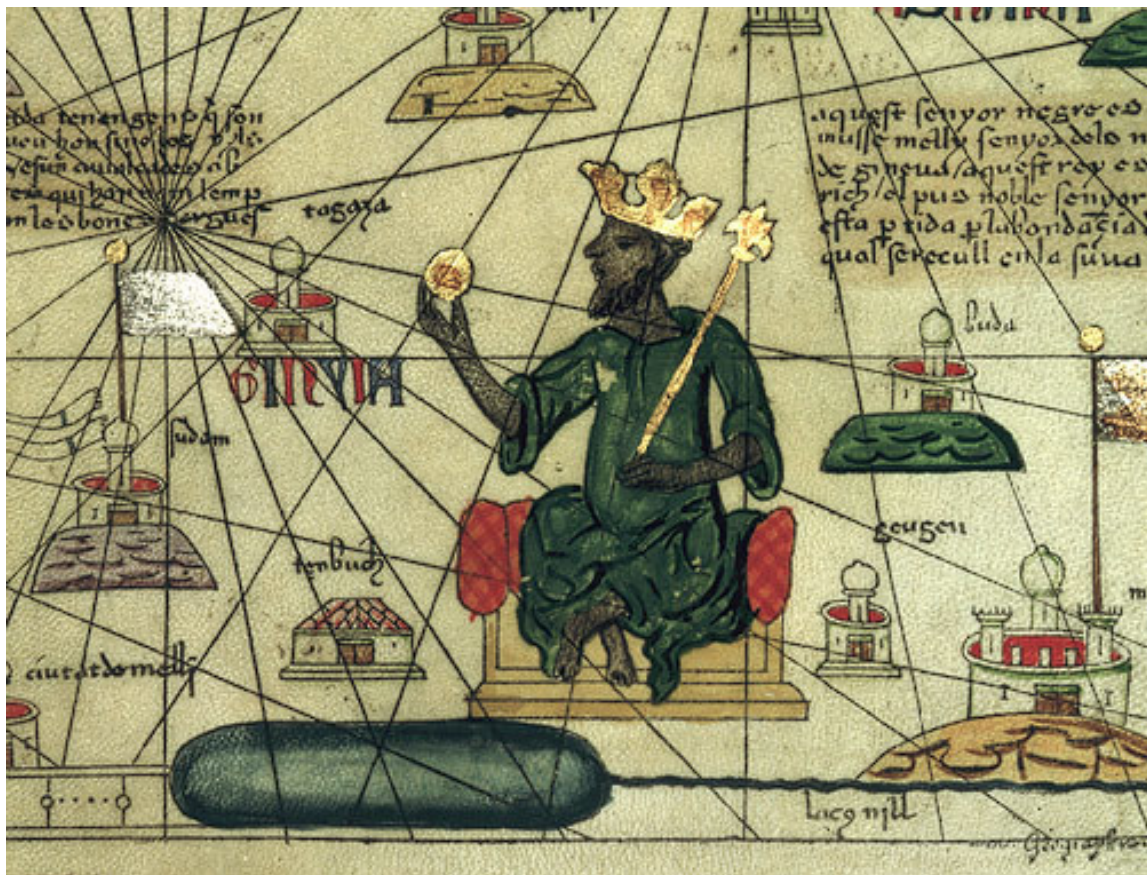
quickly began to fragment and various leaders claimed different territories. The Abbasids severed relations with the Shia, provoking the latter into creating their own caliphate, the **Fatimid Caliphate**, formed in North Africa in 909, and in sixty years they gained control of Sicily, Syria, and western Arabia.

Eventually, the Fatimids themselves split into the **Almoravid dynasty** in Maghreb and the **Ayyubid dynasty** in Egypt and western Arabia. The Almoravids are well known for their reform movements that took the form of **jihads** in 1070. These invasions moved south, attacking the sudanic **Ghana Empire**, and north, conquering Muslim Spain's **taifa** kingdoms by 1086.*[63] The Almoravids were soon replaced by the Berber-Muslim caliphate of the **Almohads** in 1121. Although they held control of Al-Andalus, they suffered heavy losses in 1212 to the Christian kingdoms of the **Reconquista**, leaving only the **Emirate of Granada**. The Almohads faced rebellions by **Zanata** Berbers and by 1269, all of Almohad territory was lost to the **Zanata Marinid dynasty**. Additionally, the Ayyubids in Egypt were eventually defeated by aristocratic slave-soldiers (or **mamluks**) of foreign descent. They formed the **Mamluk Sultanate** of Egypt in 1250.

52.5.2 Sudanic Africa

Main articles: **Ghana Empire**, **Mali Empire** and **Songhai Empire**

The **Sudan** region is the part of Sub-Saharan Africa consisting of mostly the area south of the Sahara desert but

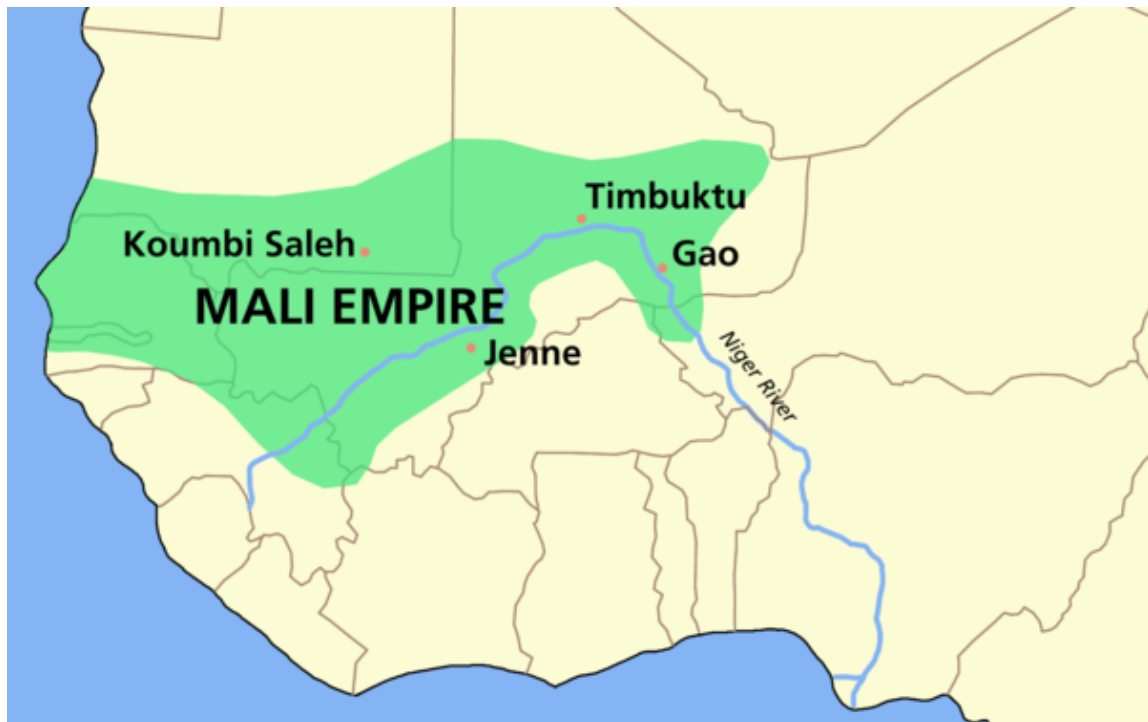


1375 depiction of **Mansa Musa I** of the **Mali Empire** holding a gold nugget.

north of Central Africa, and stretching from modern-day **Senegal** to the nation of **Sudan**. This region covers the **savanna** of Africa, a geographical area of **grasslands** and is occupied by a variety of ethnic peoples. Some of the prior societies in this area include the village of **Tichit**, which featured **Mande** chiefdoms by 1250 BCE. As early as 300 CE, cities with mudbrick architecture, city walls, and markets such as **Djenné-Djenno** had developed along the **Niger River**,*[64] a major source of prosperity. By the late 5th century, the **Soninke Empire** dominated this area, making it a hub for trade in salt and gold; it is this trade that allowed for gradually more complex societies to develop, although they remained small and isolated.*[65]

The Soninke would be replaced by the **Ghana Empire** in the 8th century. Although much mystery surrounds Ghana —especially over its origins— it is thought to have had a developed tax system and government, expansive armies,

and a useful control on gold mines that gave it a monopoly for trade.*[66] One of the earlier records of Ghana include that of the Arabian geographer **Ya'qubi** in 872, which described Ghana as having a powerful emperor-like king who dominated many subordinate kings and mined for gold. It also attested that Ghana had begun trade with Berbers and Arabs alike as early as the 9th century.*[64] By the 11th century, significant conversions to Islam began.*[60] This began with Arab travelers forming trading ties to Africans for the latter's plentiful resources. In order to better interact with the foreigners, African merchants converted to Islam. This was soon followed by high-ranking officials such as kings, for greater diplomacy; despite all of this, very little of the lower class peasantry changed their everyday traditions and scarcely converted at all.*[62]*[60] Ghana would decline in the 12th century over its struggle with the **Almoravid dynasty** to the north. Ghana would also lose significant territory to the **Sosso Empire**.



The extent of the Mali Empire in West Africa.

The **Mali Empire** rose to replace Ghana in the early thirteenth century, starting out as merely a subordinate state to Ghana,*[67] and populated by the **Mandinka people**. The leadership of **Sundiata Keita**, or the “Lion King,” founded this empire and brought prosperity by introducing certain reforms. Sundiata unified the feudal Mandinka and is credited for organizing them into **specialized jobs**. He also is supposed to have had created the basic laws and political layout in the Mali Empire that cracked down on crime and stationed **garrisons** to maintain security as well as loyalty. Loyalty was also improved through institutions that allowed for greater ethnic diversity,*[62] thus allowing for a larger empire.

This larger empire covered three gold fields in West Africa —as opposed to only one field during the Ghana —that increased commercial prosperity even more.*[68] Such trade was focused in the flourishing city of **Timbuktu**; its unique position that combined camel routes and the **Niger River** allowed for trade from Africans and Arabs alike and from as far as the Mediterranean.*[69]

In the early 14th century, the emperor **Musa I** became famous for being a devout Muslim and was bestowed the title *Mansa*, which roughly translates to “King of Kings” (i.e. emperor). Following Muslim practice, Mansa Musa embarked on the **hajj**, or pilgrimage, to Mecca in 1324. On his pilgrimage, Musa brought with him magnificent riches, over 500 slaves, and over 60,000 followers,*[68] it is also said that he gave away much of his gold, particularly in **Cairo**. Mansa Musa's pilgrimage brought to light West Africa's gold and encouraged trade with the Merinids in Maghreb (particularly Tripoli) and the Mamluks in Egypt. When Musa returned, he brought with him the Egyptian architect, **Abu Es Haq es Saheli** who was paid in gold to work on the city of Timbuktu and who built the famous **Djinguereber Mosque**. Arab scholars began to arrive as well, further enriching Timbuktu which already had scholars of exceptional learning.*[69] The center for this learning was the **University of Timbuktu**. Heavily featured in Malian intellectualism were the tradition of the **griots** —historians who passed down their knowledge orally.

The Mali Empire began to decline after the rule of Musa. His sons were unable to control the increasingly large



The Sankore Madrasah, one of three mosques that make up the University of Timbuktu.

empire and its many peoples.*[67] One such people were the **Songhai**. They gradually gained control of the Mali territories and by the end of the 14th century, they had assumed dominant power over West Africa, ending the Mali rule and instating the **Songhai Empire**.*[68]

52.5.3 Swahili East coast

In the east coast of Africa, spans from the **Red Sea** bordering what is now **Somalia** to as far down as the Republic of **Mozambique**. In medieval times, Arabic ports were established where **gold**, **spices**, and other commodities were traded. This allowed Africa to join the **Southeast Asia** trading system bringing it contact with Asia; this, along with Muslim culture, resulted in the **Swahili culture**.

Little is known of the African east coast prior to the Swahili cultures. Around the end of the 1st century CE, the **Kingdom of Aksum** is founded in what is now **Ethiopia**. The travel to the Aksumite kingdom by the bishop **Frumentius** is credited for bringing Christianity to Aksum. The king **Ezana of Axum** embraced Christianity in 333, establishing it as the official religion.*[61]

52.5.4 Bantu societies

Smaller societies in **Central Africa** and **Southern Africa** also developed at this time. These are primarily made up of the **Bantu peoples** and include the **Kingdom of Kongo**, **Great Zimbabwe**, the **Benin Empire**, and the **Kingdom of Mutapa**.

52.6 South and Southeast Asia

Vietnam was also conquered by China, although they often resisted and would occasionally regain their independence. Nonetheless, a sort of begrudging sinicization occurred. By the end of the Postclassical Era, Vietnam would be in control of its own **Nguyen Dynasty**.

52.7 East Asia

During this period, the **Eastern world** empires continued to expand through trade, migration and conquests of neighboring areas. **Japan** and **Korea** went under the process of **sinicization**, or the impression of Chinese cultural and political ideas. This was partly due to conquest, specifically in Korea; Japan sinicized mostly because the emperor and other leaders at the time were largely impressed by China's bureaucracy. The major influences China had on these countries were the spread of Confucianism, the spread of Buddhism, and the establishment of a bureaucracy (although it was vulnerable to favoritism towards the wealthy).

52.7.1 China

Postclassical China saw the rise and fall of the Tang and Song dynasties and therefore improvements in its bureaucracy, the spread of **Buddhism**, and the advent of **Neo-Confucianism**.

Sui Dynasty

Main article: **Sui Dynasty**

A new powerful dynasty began to rise in the 580's CE, amidst the divided **Six Dynasties** period. This was started when an aristocrat named Yang Jian married his daughter into the **Northern Zhou Dynasty**. He proclaimed himself **Emperor Wen** and appeased the nomadic military by increasing aristocratic power. Emperor Wen soon led the conquest of the southern **Chen Dynasty***[70] and united China once more under the **Sui Dynasty**. The emperor lowered taxes and constructed granaries that he used to prevent famine and control the market. The Sui Dynasty laid down the foundation for long-lasting political reform and additionally finalized the construction of the **Grand Canal** systems.*[70] Later, Wen's son would speed his father's death for the throne and declare himself **Emperor Yang**. Emperor Yang revived the Confucian scholars and the bureaucracy, much to anger of the aristocrats and nomadic military leaders. Yang became an excessive leader who overused China's resources for personal luxury and perpetuated exhaustive attempts to reconquer Korea. His military failures and neglect of the empire forced his own ministers to assassinate him in 618,*[70] ending the brief Sui Dynasty.

Tang Dynasty

Main article: [Tang Dynasty](#)

Fortunately, one of Yang's most respectable advisors, Li Yuan, was able to claim the throne quickly, preventing



Tang Dynasty circa 700 CE.

a chaotic collapse. He proclaimed himself **Emperor Gaozu**, and established the **Tang Dynasty** in 623. The Tang saw expansion of China through conquest of **Tibet** in the west, **Vietnam** in the south, and **Manchuria** in the north. In addition to extending the bureaucracy itself and its powers, Tang emperors also improved the education of its scholars. The **Ministry of Rites** was established and the **examination system** was improved to better qualify scholars for their jobs.*[71] Aristocrats continued to hold some power, however.

In addition, Buddhism became popular in China with two different strains between the peasantry and the elite, the **Pure Land** and **Zen** strains, respectively.*[72] **Empress Wu** was a great advocate for Buddhism, supporting Buddhist monasteries, great stone or cast-iron statues, and the like. Empress Wu also claimed an unofficial “Zhou Dynasty” (this would revert to the Tang after her rule) and displayed China’s tolerance of a woman ruler. However, Buddhism would also experience some backlash, especially from Confucianists and Taoists. This would usually involve criticism about how it was costing the state money, since the government was unable to tax Buddhist monasteries, and additionally sent many grants and gifts to them.*[73] This culminated with **Emperor Wuzong**’s policies forcing Buddhists to convert to Confucianism or Taoism.

The Tang dynasty began to decline under the rule of **Emperor Xuanzong**, who began to neglect the economy and military and caused unrest amongst the court officials due to the excessive influence of his concubine, **Yang Guifei**,



Miniature statue of Buddha from the Tang Dynasty

and her family. This eventually sparked a revolt in 755.*[74] Although the revolt failed, subduing it required involvement with the unruly nomadic tribes outside of China and distributing more power to local leaders—leaving the government and economy in a degraded state. The Tang dynasty officially ended in 907 and various factions led by the aforementioned nomadic kingdoms and regional leaders would fight for control of China in the **Five Dynasties and Ten Kingdoms period**.

It was during the 9th century AD when Chinese alchemists attempted to produce a medicine of eternal life by mixing sulfur, potassium nitrate (saltpeter), and charcoal together. But what they did not realize is that combining sulfur, saltpeter, and charcoal had created an explosive black powder.*[75]*[76]

Song Dynasties

Main article: [Song Dynasty](#)

In 960, the dominant general Zhao Kuangyin declared himself **Emperor Taizu**, reuniting most of China under the **Song Dynasty**. The Song, however, lost territories in the north and could not defeat one of the nomadic tribes there—the **Liao Dynasty** ruled by the highly sinicized **Khitans**. From 1004 on, the Song would have to pay tribute to avoid invasion and thus set the precedent for other nomadic kingdoms to oppress them.*[77] The embarrassing tribute of the Song damaged their economy. Thus, chief minister **Wang Anshi** attempted economic reform in the 1070s through irrigation projects, raised taxes, and a greater army. Much of this improvement was reversed when his patron emperor was succeeded in 1080 by an emperor who rejected Wang's policies.*[77] Instead, this emperor would start the revival of Confucianism in the form of **Neo-Confucianism**. This had the effect of putting the Confucian scholars at a higher status than aristocrats or Buddhists; another major result was the decline in women's position, with neo-Confucian values emphasizing men's superiority and encouraging **foot-binding**. One of Neo-Confucianism's most prominent philosophers was **Zhu Xi**. The Song would also see improvements in agriculture, technology, and commerce (especially with the introduction of **paper money**), as well as scholarly and artistic refinement.*[78]

Eventually the Liao Dynasty in the north was overthrown by the **Jin Dynasty** ruled by the **Jurchen people**. The new Jin kingdom **invaded northern China**, leaving the Song to flee farther south and creating the **Southern Song Dynasty** in 1126. There, cultural life flourished* [78] until the conquest of China under the **Mongols**, completed in 1279, which established the foreign-ruled **Yuan Dynasty**.

52.7.2 Japan

Asuka period

Japan's medieval history began with the **Asuka period**, from around 600 CE to 710 CE. The time was characterized by the **Taika Reform** and imperial centralization, both of which were a direct result of growing Chinese contact and influences. In 603, Prince Shōtoku of the **Yamato dynasty** began significant political and cultural changes. He issued the **Seventeen-article constitution** in 604, centralizing power towards the emperor (under the title *tenno*, or heavenly sovereign) and removing the power to levy taxes from provincial lords. Shōtoku was also a patron of Buddhism and he encouraged building temples competitively.*[79]

Nara period

Shōtoku's reforms transitioned Japan to the **Nara period** (c. 710 to c. 794), with the moving of the Japanese capital to **Nara** in **Honshu**. This period saw the culmination of Chinese-style writing, etiquette, and architecture in Japan along with Confucian ideals* [80] to supplement the already present Buddhism. Peasants revered both Confucian scholars and Buddhist monks. However, Buddhism gained the status of state religion, and the government ordered the construction of Buddhist temples, monasteries, and statues.*[79] The lavish spending combined with the fact that many aristocrats did not pay taxes, put a heavy burden on peasantry that caused poverty and famine.*[79] Eventually the Buddhist position got out of control, threatening to seize imperial power and causing **Emperor Kammu** to move the capital to **Heian-kyō** to avoid a Buddhist takeover.* [80] This marked the beginning of the **Heian period** and the end of Taika reform.



The Neo-Confucian scholar and philosopher, Zhu Xi.

Heian period

With the Heian period (from 794 to 1185) came a decline of imperial power. Chinese influence also declined, as a result of its correlation with imperial centralization and the heavenly mandate, which came to be regarded as inef-



Sculpture of Prince Shōtoku

fective. By 838, the Japanese court discontinued its embassies in China; only traders and Buddhist monks continued to travel to China. Buddhism itself came to be considered more Japanese than Chinese, and persisted to be popular in Japan. Buddhist monks and monasteries continued their attempts to gather personal power in courts, along with aristocrats. One particular noble family that dominated influence in the imperial bureaucracy was the Fujiwara clan.

During this time cultural life in the imperial court flourished. There was a focus on beauty and social interaction and writing and literature was considered refined. Noblewomen were cultured the same as noblemen, dabbling in creative works and politics. A prime example of both Japanese literature and women's role in high-class culture at this time was *The Tale of Genji*, written by the lady-in-waiting Murasaki Shikibu. Popularization of wooden palaces and shōji sliding doors amongst the nobility also occurred.

Loss of imperial power also led to the rise of provincial warrior elites. Small lords began to function independently. They administered laws, supervised public works projects, and collected revenue for themselves instead of the imperial court. Regional lords also began to build their own armies. These warriors were loyal only their local lords and not the emperor, although the imperial government increasingly called them in to protect the capital. The regional warrior class developed into the samurai, which created its own culture: including specialized weapons such as the katana and a form of chivalry, bushido. The imperial government's loss of control in the second half of the Heian period allowed banditry to grow, requiring both feudal lords and Buddhist monasteries to procure warriors for protection. As imperial control over Japan declined, feudal lords also became more independent and seceded from the empire. These feudal states squandered the peasants living in them, reducing the farmers to an almost serfdom status. Peasants were also rigidly restricted from rising to the samurai class, being physically set off by dress and weapon restrictions. As a result of their oppression, many peasants turned to Buddhism as a hope for reward in the afterlife for upright behavior.*[81]

With the increase of feudalism, families in the imperial court began to depend on alliances with regional lords. The Fujiwara clan declined from power, replaced by a rivalry between the Taira clan and the Minamoto clan. This rivalry grew into the Genpei War in the early 1180s. This war saw the use of both samurai and peasant soldiers. For the samurai, battle was ritual and they often easily cut down the poorly trained peasantry. The Minamoto clan proved successful due to their rural alliances. Once the Taira was destroyed, the Minamoto established a military government called the shogunate (or bakufu), centered in Kamakura.

Kamakura period

The end of the Genpei War and the establishment of the Kamakura shogunate marked the end of the Heian period and the beginning of the Kamakura period in 1185, solidifying feudal Japan.

52.7.3 Korea

Korea was fought between the three local kingdoms: Silla, Baekje, and Goguryeo. This continued until the Silla allied with Tang China to conquer all of Korea. Attempts at sinicization occurred.

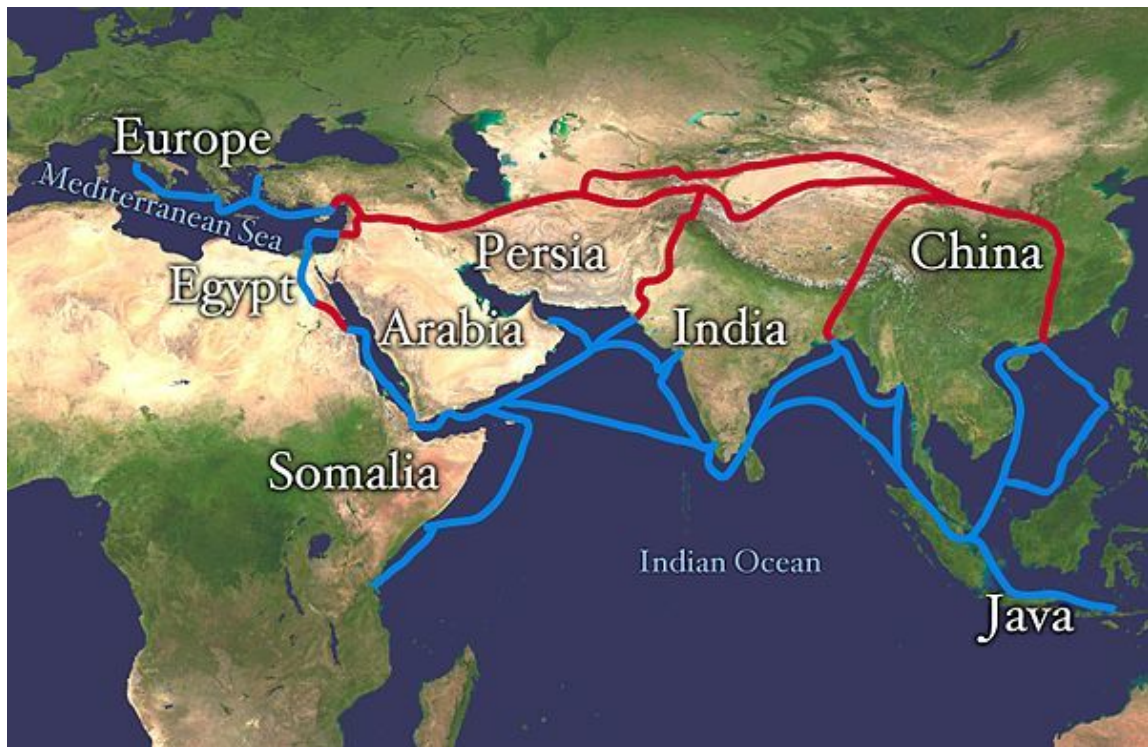
52.8 Eurasia

52.8.1 The Silk Road

Main article: [Silk Road](#)

The Silk Road was a Eurasian trade route that played a large role in global communication and interaction. It stimulated cultural exchange; encouraged the learning of new languages; resulted in the trade of many goods, such as silk, gold, and spices; and also spread religion and disease.*[82] It is even claimed by some historians —such as Andre Gunder Frank, William Hardy McNeill, Jerry H. Bentley, and Marshall Hodgson —that the Afro-Eurasian world was loosely united culturally, and that the Silk Road was fundamental to this unity.*[82] This major trade route began with the Han Dynasty of China, connecting it to the Roman Empire and any regions in between or nearby. At this time, Central Asia exported horses, wool, and jade into China for the latter's silk; the Romans would trade for the Chinese commodity as well, offering wine in return.*[83] The Silk Road would often decline and rise again in trade from the Iron Age to the Postclassical Era. Following one such decline, it was reopened in Central Asia by General Ban Chao during the 1st century.*[84]

The Silk Road was also a major factor in spreading religion across Afro-Eurasia. Muslim teachings from Arabia and Persia reached East Asia. Buddhism spread from India, to China, to Central Asia. One significant development in the spread of Buddhism was the carving of the Gandhara School in the cities of Taxila and the Peshwar, allegedly in the mid 1st century.*[84]



Main routes of the Silk Road

The Silk Road flourished in the 13th century during the reign of the Mongol Empire, which through conquest had brought stability in Central Asia comparable to the *Pax Romana*. It was claimed by a Muslim historian that Central Asia, “enjoyed such a peace that a man might have journeyed from the land of sunrise to the land of sunset with a golden platter upon his head without suffering the least violence from anyone.” ^[85] As such, trade and communication between Europe, East Asia, South Asia, and the Middle East required little effort. Handicraft production, art, and scholarship prospered, and wealthy merchants enjoyed cosmopolitan cities. ^[85]

Finally, the Silk Road trade played a role in spreading the infamous **Black Death**. Originating in China, the **bubonic plague** was spread by Mongol warriors catapulting diseased corpses into enemy towns in the **Crimea**. The disease, spread by rats, was carried by merchant ships sailing across the Mediterranean that brought the plague back to Sicily, causing an **epidemic** in 1347. ^[29] Nevertheless, after the 15th century, the Silk Road disappeared from regular use. This was primarily a result from the growing sea travel pioneered by Europeans, which allowed the trade of goods by sailing around the southern tip of Africa and into the Indian Ocean.

52.8.2 Mongol Empire

Main article: [Mongol Empire](#)

The Mongol Empire which existed during the 13th and 14th centuries, was the largest **contiguous land empire** in history. ^[86] Originating in the **steppes** of **Central Asia**, the Mongol Empire eventually stretched from **Central Europe** to the **Sea of Japan**, extending northwards into **Siberia**, eastwards and southwards into the **Indian subcontinent**, **Indochina**, and the **Iranian plateau**, and westwards as far as the **Levant** and **Arabia**.

The empire unified nomadic tribes of historical **Mongolia** under the leadership of **Genghis Khan**, who was proclaimed ruler of all Mongols in 1206. The empire grew rapidly under his rule and then under his descendants, who sent invasions in every direction. ^[87]^[88]^[89]^[90]^[91]^[92] The vast transcontinental empire connected the **east** with the **west** with an enforced *Pax Mongolica* allowing trade, technologies, commodities, and ideologies to be disseminated and exchanged across **Eurasia**. ^[93]^[94]

The empire began to split due to wars over succession, as the grandchildren of Genghis Khan disputed whether the royal line should follow from his son and initial heir **Ögedei**, or one of his other sons such as **Tolui**, **Chagatai**, or **Jochi**. After **Möngke Khan** died, rival *kurultai* councils simultaneously elected different successors, the brothers **Ariq Böke** and **Kublai Khan**, who then not only fought each other in the **Toluid Civil War**, but also dealt with challenges from



Expansion of the Mongol Empire 1206–1294

descendants of other sons of Genghis.* [95] Kublai successfully took power, but civil war ensued as Kublai sought unsuccessfully to regain control of the **Chagatayid** and **Ögedeid** families.

The **Battle of Ain Jalut** in 1260 marked the high-water point of the **Mongol conquests** and was the first time a Mongol advance had ever been beaten back in direct combat on the battlefield. Though the Mongols launched many more invasions into the Levant, briefly occupying it and raiding as far as Gaza after a decisive victory at the **Battle of Wadi al-Khazandar** in 1299, they withdrew due to various geopolitical factors.

By the time of Kublai's death in 1294, the Mongol Empire had fractured into four separate khanates or empires, each pursuing its own separate interests and objectives: the **Golden Horde** khanate in the northwest; the **Chagatai Khanate** in the west; the **Ilkhanate** in the southwest; and the **Yuan Dynasty** based in modern-day Beijing.* [96] In 1304, the three western khanates briefly accepted the nominal suzerainty of the Yuan Dynasty,* [97]* [98] but it was later overthrown by the **Han Chinese Ming Dynasty** in 1368. The Genghisid rulers returned to Mongolia homeland and continued rule the **Post-Imperial Mongolia**.

52.9 The Americas

Main article: **Pre-Columbian era**

The Postclassical Era of the Americas can be considered set at a different time span from that of Afro-Eurasia. As the developments of Mesoamerican and Andean civilization differ greatly from that of the Old World, as well as the speed at which it developed, the Postclassical Era in the traditional sense does not take place until near the end of the Medieval Age in Afro-Eurasia. As such, for the purposes of this article, the **Classic stage** of the Americas will be discussed here, which takes place from about 400 CE to 1400 CE. For the technical Postclassical stage in American development, see **Post-Classic stage**.

52.9.1 Mesoamerica

The **Classic Period** of Mesoamerican civilization begins with the decline and fall of the **Toltec** civilization. The resulting anarchy in the modern-day Mexico region consisted of various tribes and factions fighting for power. At the time, a small band of violent, religious radicals called the **Aztecs** began minor raids throughout the area. Eventually they began to claim connections with the Toltec civilization, and insisted they were the rightful successors. They began to grow in numbers and conquer large areas of land. Fundamental to their conquest, was the use of **political terror** in the sense that the Aztec leaders and priests would command the **human sacrifice** of their **subjugated** people as means of humility and coercion. Most of the Mesoamerican region would eventually fall under the Aztec Empire. The Aztec capital, **Tenochtitlan**, was founded 1325 on a small island in the of **Lake Texcoco**. This was in accordance with a legend stating wherever an eagle was seen devouring a snake on a cactus, a great city must be built. Its religion was based on **several gods** some of which would affect nature, and some of which required sacrifice. According to **Aztec religion**, the gods supported the universe, and human blood supported the gods; if there was not a steady flow of sacrifice, the universe would die. Aztec developments expanded cultivation, applying the use of **chinampas**, irrigation, and **terrace agriculture**; important crops included **maize**, **sweet potatoes**, and **avocados**. Aztecs spoke the **Nahuatl** language.

52.9.2 Andean region

In the **Andean** region of **South America**, another civilization began to rise as well, the **Inca Empire**. Led by their, sun-god king, **Sapa Inca**, they slowly conquered what is now Peru, and built their society there. Although the Incas spoke the **Quechua** languages, they did not have any writing system but relied on a series of knotted strings to communicate messages. Incas have also been known to have used **abacuses** to calculate mathematics. The Inca Empire is known for some of its magnificent structures, such as **Machu Picchu** in the **Cusco** region.

52.9.3 North America

Although no distinct political states developed in northern **North America**, many **hunter-gatherer** and **agricultural** societies thrived in the diverse region. **Native American tribes** varied greatly in characteristics, but most lacked developed technology and lived a simple life of sustenance.

52.10 End of Period

As the Postclassical era draws to a close in the 15th century, many of the empires established throughout the period begin to decline and fall.

The Byzantine Empire would soon be overshadowed in the Mediterranean by the Islamic Empires. Additionally, they would suffer losses from Western Europe, losing territory in Italy. The Byzantines would face repeated attacks from the Islamic Empires and Catholic powers during the **Fourth Crusade**, until the loss of their capital to the **Ottoman Turks** in 1453.

52.11 See also

- **Ancient history** - covers all human history/prehistory preceding the Postclassical Era
- **Iron Age** - preceding global time period.
- **Early modern period** - succeeding global time period.
- **Classical antiquity** - centered in the **Mediterranean Basin**, the interlocking civilizations of **Ancient Greece** and **Ancient Rome**
- **Late Antiquity** (aka: **Dark Ages**) - mainland Europe and the Mediterranean Basin, transition from Classical Antiquity to the **Middle Ages**.
- **History by period**

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- [5] Though, the everyday context in use is reverse (such as historians reference to *Medieval China*).
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52.13 External links

- [El Camino de Santiago](#) The UCLA's article on Charlemagne
- [The Avalon Project](#) Collection of medieval documents
- [The History Guide](#) Article on Justinian I of Byzantium
- [Islamic Studies](#) Collection of links on Islamic History
- [Silk Road Seattle Project](#) Various information on Silk Road cultures
- [Asia for Educators](#) The Mongols' effects on world history
- [BBC's World Service](#) Historical summaries of African societies
- [Heilbrunn Timeline of Art History](#) History and art of Islam in Africa

Chapter 53

Pragmatics

This article is about the subfield of linguistics. For other uses, see [Pragmatic](#).

Pragmatics is a subfield of [linguistics](#) and [semiotics](#) that studies the ways in which context contributes to meaning. Pragmatics encompasses [speech act](#) theory, conversational [implicature](#), [talk in interaction](#) and other approaches to language behavior in [philosophy](#), [sociology](#), [linguistics](#) and [anthropology](#).^[1] Unlike [semantics](#), which examines meaning that is conventional or “coded” in a given language, pragmatics studies how the transmission of meaning depends not only on structural and linguistic knowledge (e.g., [grammar](#), [lexicon](#), etc.) of the speaker and listener, but also on the context of the utterance, any pre-existing knowledge about those involved, the inferred [intent](#) of the speaker, and other factors.^[2] In this respect, pragmatics explains how language users are able to overcome apparent [ambiguity](#), since meaning relies on the manner, place, time etc. of an utterance.^[1]

The ability to understand another speaker's intended meaning is called *pragmatic competence*.^[3]^[4]^[5]

53.1 Ambiguity

Main article: [Ambiguity](#)

The sentence “You have a green light” is ambiguous. Without knowing the context, the identity of the speaker, and his or her intent, it is difficult to infer the meaning with confidence. For example:

- It could mean that you have green ambient lighting.
- It could mean that you have a green light while driving your car.
- It could mean that you can go ahead with the project.
- It could mean that your body has a green glow.
- It could mean that you possess a light bulb that is tinted green.

Similarly, the sentence “Sherlock saw the man with binoculars” could mean that Sherlock observed the man by using binoculars, or it could mean that Sherlock observed a man who was holding binoculars (*syntactic ambiguity*).^[6] The meaning of the sentence depends on an understanding of the context and the speaker's intent. As defined in linguistics, a sentence is an abstract entity — a string of words divorced from non-linguistic context — as opposed to an [utterance](#), which is a concrete example of a speech act in a specific context. The closer conscious subjects stick to common words, idioms, phrasings, and topics, the more easily others can surmise their meaning; the further they stray from common expressions and topics, the wider the variations in interpretations. This suggests that sentences do not have meaning intrinsically; there is not a meaning associated with a sentence or word, they can only symbolically represent an idea. *The cat sat on the mat* is a sentence in English. If someone were to say to someone else, “The cat sat on the mat,” this is an example of an utterance. Thus, there is no such thing as a sentence, term, expression or word symbolically representing a single true meaning; it is underspecified (which cat sat on which mat?) and potentially ambiguous. The meaning of an utterance, on the other hand, is inferred based on linguistic knowledge and knowledge of the

non-linguistic context of the utterance (which may or may not be sufficient to resolve ambiguity). In mathematics with **Berry's paradox** there arose a systematic ambiguity with the word “definable”. The ambiguity with words shows that the descriptive power of any human language is limited.

53.2 Etymology

The word *pragmatics* derives via **Latin** *pragmaticus* from the **Greek** πραγματικός (*pragmatikos*), meaning amongst others “fit for action”, *[7] which comes from πράγμα (*pragma*), “deed, act”, *[8] and that from πράσσω (*prassō*), “to pass over, to practise, to achieve”. *[9]

53.3 Origins

Pragmatics was a reaction to **structuralist** linguistics as outlined by **Ferdinand de Saussure**. In many cases, it expanded upon his idea that language has an analyzable structure, composed of parts that can be defined in relation to others. Pragmatics first engaged only in **synchronic** study, as opposed to examining the historical development of language. However, it rejected the notion that all meaning comes from **signs** existing purely in the abstract space of *langue*. Meanwhile, **historical pragmatics** has also come into being.

53.4 Areas of interest

- The study of the speaker's meaning, not focusing on the phonetic or grammatical form of an utterance, but instead on what the speaker's intentions and beliefs are.
- The study of the meaning in context, and the influence that a given context can have on the message. It requires knowledge of the speaker's identities, and the place and time of the utterance.
- The study of **implicatures**, i.e. the things that are communicated even though they are not explicitly expressed.
- The study of relative distance, both social and physical, between speakers in order to understand what determines the choice of what is said and what is not said.
- The study of what is not meant, as opposed to the intended meaning, i.e. that which is unsaid and unintended, or unintentional.
- **Information structure**, the study of how utterances are marked in order to efficiently manage the common ground of referred entities between speaker and hearer
- **Formal Pragmatics**, the study of those aspects of meaning and use, for which context of use is an important factor, by using the methods and goals of formal semantics.

53.5 Referential uses of language

When we speak of the referential uses of language we are talking about how we use **signs** to refer to certain items. Below is an explanation of, first, what a sign is, second, how meanings are accomplished through its usage.

A sign is the link or relationship between a **signified** and the **signifier** as defined by Saussure and Huguenin. The signified is some entity or concept in the world. The signifier represents the signified. An example would be:

Signified: the concept cat

Signifier: the word “cat”

The relationship between the two gives the sign meaning. This relationship can be further explained by considering what we mean by “meaning.” In pragmatics, there are two different types of meaning to consider: **semantico-referential meaning** and **indexical meaning**. Semantico-referential meaning refers to the aspect of meaning, which

describes events in the world that are independent of the circumstance they are uttered in. An example would be propositions such as:

“Santa Claus eats cookies.”

In this case, the proposition is describing that Santa Claus eats cookies. The meaning of this proposition does not rely on whether or not Santa Claus is eating cookies at the time of its utterance. Santa Claus could be eating cookies at any time and the meaning of the proposition would remain the same. The meaning is simply describing something that is the case in the world. In contrast, the proposition, “Santa Claus is eating a cookie right now,” describes events that are happening at the time the proposition is uttered.

Semantico-referential meaning is also present in meta-semantic statements such as:

Tiger: carnivorous, a mammal

If someone were to say that a tiger is a carnivorous animal in one context and a mammal in another, the definition of tiger would still be the same. The meaning of the sign tiger is describing some animal in the world, which does not change in either circumstance.

Indexical meaning, on the other hand, is dependent on the context of the utterance and has rules of use. By rules of use, it is meant that indexicals can tell you when they are used, but not what they actually mean.

Example: “I”

Whom “I” refers to depends on the context and the person uttering it.

As mentioned, these meanings are brought about through the relationship between the signified and the signifier. One way to define the relationship is by placing signs in two categories: **referential indexical signs**, also called “shifters,” and **pure indexical signs**.

Referential indexical signs are signs where the meaning shifts depending on the context hence the nickname “shifters.” ‘I’ would be considered a referential indexical sign. The referential aspect of its meaning would be ‘1st person singular’ while the indexical aspect would be the person who is speaking (refer above for definitions of semantico-referential and indexical meaning). Another example would be:

“This”

Referential: singular count

Indexical: Close by

A pure indexical sign does not contribute to the meaning of the propositions at all. It is an example of a “non-referential use of language.”

A second way to define the signified and signifier relationship is **C.S. Peirce's Peircean Trichotomy**. The components of the trichotomy are the following:

1. **Icon**: the signified resembles the signifier (signified: a dog's barking noise, signifier: bow-wow)
2. **Index**: the signified and signifier are linked by proximity or the signifier has meaning only because it is pointing to the signified
3. **Symbol**: the signified and signifier are arbitrarily linked (signified: a cat, signifier: the word cat)

These relationships allow us to use signs to convey what we want to say. If two people were in a room and one of them wanted to refer to a characteristic of a chair in the room he would say “this chair has four legs” instead of “a chair has four legs.” The former relies on context (indexical and referential meaning) by referring to a chair specifically in the room at that moment while the latter is independent of the context (semantico-referential meaning), meaning the concept chair.

53.6 Non-referential uses of language

53.6.1 Silverstein's “pure”indexes

Michael Silverstein has argued that “nonreferential” or “pure” indices do not contribute to an utterance's referential meaning but instead “signal some particular value of one or more contextual variables.”*[10] Although nonreferential indexes are devoid of semantico-referential meaning, they do encode “pragmatic” meaning.

The sorts of contexts that such indexes can mark are varied. Examples include:

- **Sex indexes** are affixes or inflections that index the sex of the speaker, e.g. the verb forms of female **Koasati** speakers take the suffix “-s” .

- **Deference indexes** are words that signal social differences (usually related to status or age) between the speaker and the addressee. The most common example of a deference index is the V form in a language with a **T-V distinction**, the widespread phenomenon in which there are multiple second-person pronouns that correspond to the addressee's relative status or familiarity to the speaker. **Honorifics** are another common form of deference index and demonstrate the speaker's respect or esteem for the addressee via special forms of address and/or self-humbling first-person pronouns.
- An **Affinal taboo index** is an example of **avoidance speech** that produces and reinforces sociological distance, as seen in the Aboriginal **Dyirbal language** of Australia. In this language and some others, there is a social taboo against the use of the everyday lexicon in the presence of certain relatives (mother-in-law, child-in-law, paternal aunt's child, and maternal uncle's child). If any of those relatives are present, a Dyirbal speaker has to switch to a completely separate lexicon reserved for that purpose.

In all of these cases, the semantico-referential meaning of the utterances is unchanged from that of the other possible (but often impermissible) forms, but the pragmatic meaning is vastly different.

53.6.2 The performative

Main articles: **Performative utterance** and **Speech act theory**

J.L. Austin introduced the concept of the **performative**, contrasted in his writing with “constative” (i.e. descriptive) utterances. According to Austin's original formulation, a performative is a type of utterance characterized by two distinctive features:

- It is not **truth-evaluable** (i.e. it is neither true nor false)
- Its uttering *performs* an action rather than simply describing one

However, a performative utterance must also conform to a set of **felicity conditions**.

Examples:

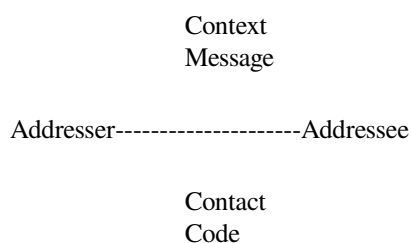
- “I hereby pronounce you man and wife.”
- “I accept your apology.”
- “This meeting is now adjourned.”

53.6.3 Jakobson's six functions of language

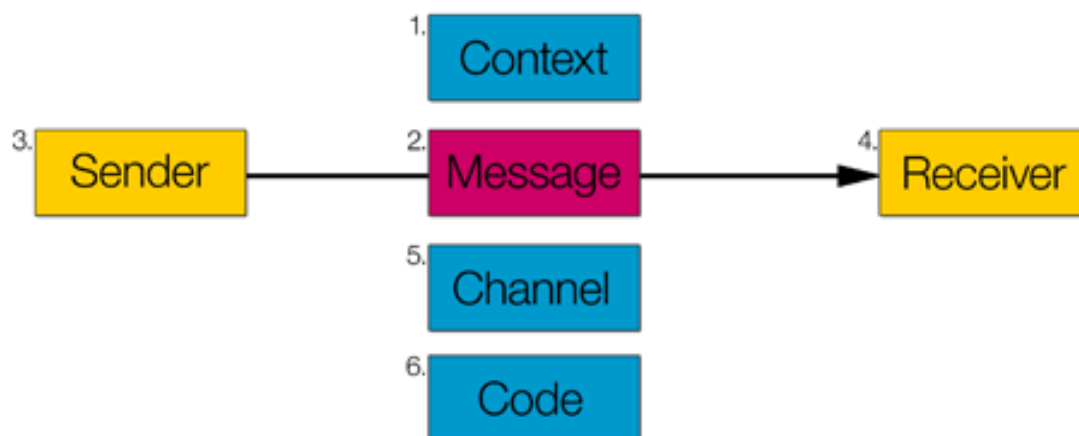
Main article: **Jakobson's functions of language**

Roman Jakobson, expanding on the work of **Karl Bühler**, described six “constitutive factors” of a **speech event**, each of which represents the privileging of a corresponding function, and only one of which is the referential (which corresponds to the **context** of the speech event). The six constitutive factors and their corresponding functions are diagrammed below.

The six constitutive factors of a speech event



The six functions of language



The six factors of an effective verbal communication. To each one corresponds a communication function (not displayed in this picture).[11]*

Referential
Poetic

Emotive-----Conative

Phatic
Metalingual

- The Referential Function corresponds to the factor of Context and describes a situation, object or mental state. The descriptive statements of the referential function can consist of both definite descriptions and **deictic** words, e.g. “The autumn leaves have all fallen now.”
- The Expressive (alternatively called “emotive” or “affective”) Function relates to the Addresser and is best exemplified by **interjections** and other sound changes that do not alter the **denotative meaning** of an utterance but do add information about the Addresser's (speaker's) internal state, e.g. “Wow, what a view!”
- The Conative Function engages the Addressee directly and is best illustrated by **vocatives** and **imperatives**, e.g. “Tom! Come inside and eat!”
- The Poetic Function focuses on “the message for its own sake” *[12] and is the operative function in poetry as well as slogans.
- The **Phatic** Function is language for the sake of interaction and is therefore associated with the Contact factor. The Phatic Function can be observed in greetings and casual discussions of the weather, particularly with strangers.
- The Metalingual (alternatively called “metalinguistic” or “reflexive”) Function is the use of language (what Jakobson calls “Code”) to discuss or describe itself.

53.7 Related fields

There is considerable overlap between pragmatics and **sociolinguistics**, since both share an interest in **linguistic meaning** as determined by usage in a speech community. However, sociolinguists tend to be more interested in variations in language within such communities.

Pragmatics helps anthropologists relate elements of language to broader social phenomena; it thus pervades the field of **linguistic anthropology**. Because pragmatics describes generally the forces in play for a given utterance, it includes

the study of power, gender, race, identity, and their interactions with individual speech acts. For example, the study of *code switching* directly relates to pragmatics, since a switch in code effects a shift in pragmatic force. *[12]

According to *Charles W. Morris*, pragmatics tries to understand the relationship between signs and their users, while *semantics* tends to focus on the actual objects or ideas to which a word refers, and *syntax* (or “syntactics”) examines relationships among signs or symbols. Semantics is the literal meaning of an idea whereas pragmatics is the implied meaning of the given idea.

Speech Act Theory, pioneered by *J.L. Austin* and further developed by *John Searle*, centers around the idea of the *performative*, a type of utterance that performs the very action it describes. *Speech Act Theory's* examination of *Illocutionary Acts* has many of the same goals as pragmatics, as outlined above.

53.8 Formalization

There has been a great amount of discussion on the boundary between semantics and pragmatics *[13] and there are many different formalizations of aspects of pragmatics linked to context dependence. Particular interesting cases are the discussions on the semantics of indexicals and the problem of referential descriptions, a topic developed after the theories of *Keith Donnellan*. *[14] A proper logical theory of formal pragmatics has been developed by *Carlo Dalla Pozza*, according to which it is possible to connect classical semantics (treating propositional contents as true or false) and intuitionistic semantics (dealing with illocutionary forces). The presentation of a formal treatment of pragmatics appears to be a development of the Fregean idea of assertion sign as formal sign of the act of assertion.

53.9 In literary theory

Pragmatics (more specifically, *Speech Act Theory's* notion of the *performative*) underpins *Judith Butler's* theory of gender performativity. In *Gender Trouble*, she claims that gender and sex are not natural categories, but socially constructed roles produced by “reiterative acting.”

In *Excitable Speech* she extends her theory of *performativity* to *hate speech* and *censorship*, arguing that censorship necessarily strengthens any discourse it tries to suppress and therefore, since the state has sole power to define hate speech legally, it is the state that makes hate speech performative.

Jacques Derrida remarked that some work done under Pragmatics aligned well with the program he outlined in his book *Of Grammatology*.

Émile Benveniste argued that the pronouns “I” and “you” are fundamentally distinct from other pronouns because of their role in creating the subject.

Gilles Deleuze and *Félix Guattari* discuss linguistic pragmatics in the fourth chapter of *A Thousand Plateaus* (“November 20, 1923--Postulates of Linguistics”). They draw three conclusions from Austin: (1) A *performative* utterance does not communicate information about an act second-hand—it is the act; (2) Every aspect of language (“semantics, syntactics, or even phonematics”) functionally interacts with pragmatics; (3) There is no distinction between language and speech. This last conclusion attempts to refute *Saussure's* division between *langue* and *parole* and *Chomsky's* distinction between *surface structure* and *deep structure* simultaneously. *[15]

53.10 Significant works

- J. L. Austin's *How To Do Things With Words*
- Paul Grice's cooperative principle and conversational maxims
- Brown & Levinson's Politeness Theory
- Geoffrey Leech's politeness maxims
- Levinson's Presumptive Meanings
- Jürgen Habermas's universal pragmatics
- Dan Sperber and Deirdre Wilson's relevance theory

- Dallin D. Oaks's *Structural Ambiguity in English: An Applied Grammatical Inventory*

53.11 See also

- Anaphora
- Charles Sanders Peirce (and also see: Charles Sanders Peirce bibliography)
- Collapsing sequence
- Deixis
- Entailment
- Exegesis
- Formal Pragmatics
- Gricean maxims
- Implicature
- Indexicality
- Mediated Stylistics
- Origo
- Paul Grice
- Practical reason
- Presupposition
- Semantics
- Semiotics
- Sign relation
- Sitz im Leben
- Speech act
- Speech-Language Pathology
- Stylistics (field of study)
- William James

53.12 Notes

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- [2] Shaozhong, Liu. "What is pragmatics?". Retrieved 18 March 2009.
- [3] Daejin Kim *et al.* (2002) "The Role of an Interactive Book Reading Program in the Development of Second Language Pragmatic Competence" , *The Modern Language Journal*, Vol. 86, No. 3 (Autumn, 2002), pp. 332-348
- [4] Masahiro Takimoto (2008) "The Effects of Deductive and Inductive Instruction on the Development of Language Learners' Pragmatic Competence" , *The Modern Language Journal*, Vol. 92, No. 3 (Fall, 2008), pp. 369-386
- [5] Dale April Koike (1989) "Pragmatic Competence and Adult L2 Acquisition: Speech Acts in Interlanguage" , *The Modern Language Journal*, Vol. 73, No. 3 (Autumn, 1989), pp. 279-289
- [6] <http://ocw.mit.edu/OcwWeb/Linguistics-and-Philosophy/24-903Spring-2005/CourseHome/>

- [7] πραγματικός, Henry George Liddell, Robert Scott, *A Greek-English Lexicon*, on Perseus
- [8] πράγμα, Henry George Liddell, Robert Scott, *A Greek-English Lexicon*, on Perseus
- [9] πράσσω, Henry George Liddell, Robert Scott, *A Greek-English Lexicon*, on Perseus
- [10] Silverstein 1976
- [11] Middleton, Richard (1990/2002). *Studying Popular Music*, p. 241. Philadelphia: Open University Press. ISBN 0-335-15275-9.
- [12] Duranti 1997
- [13] see for instance F.Domaneschi. C. Penco, *What is Said and What is Not*, CSLI Publication, Stanford
- [14] see for instance S. Neale, *Descriptions*, 1990
- [15] Deleuze, Gilles and Félix Guattari (1987) [1980]. *A Thousand Plateaus*. University of Minnesota Press.

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53.14 External links

- International Pragmatics Association (IPrA)
- Journal of Pragmatics
- “What is Pragmatics?” (eprint) by Shaozhong Liu
- European Communicative Strategies (ECSTRA), a (wiki)project in comparative pragmatics directed by Joachim Grzega.

Chapter 54

Premise

This article is about the usage of *premise* in discourse and logic. For other uses, see [Premise \(disambiguation\)](#).

A **premise** or **premiss**^[lower-alpha 1] is a statement that an argument claims will induce or justify a conclusion.^{*[3]} In other words: a premise is an assumption that something is true. In **logic**, an **argument** requires a **set** of (at least) two declarative **sentences** (or “**propositions**”) known as the **premises** or **premisses** along with another declarative sentence (or “**proposition**”) known as the **conclusion**. This structure of two premises and one conclusion forms the basic argumentative structure. More complex arguments can use a series of rules to connect several premises to one conclusion, or to derive a number of conclusions from the original premises which then act as premises for additional conclusions. An example of this is the use of the **rules of inference** found within **symbolic logic**.

Aristotle held that any logical argument could be reduced to two premises and a conclusion.^{*[4]} Premises are sometimes left unstated in which case they are called missing premises, for example:

Socrates is mortal because all men are mortal.

It is evident that a tacitly understood claim is that Socrates is a man. The fully expressed reasoning is thus:

Because all men are mortal and Socrates is a man, Socrates is mortal.

In this example, the independent **clauses** preceding the comma (namely, “all men are mortal” and “Socrates is a man”) are the premises, while “Socrates is mortal” is the conclusion.

The proof of a conclusion depends on both the **truth** of the premises and the **validity** of the argument.

54.1 Notes

- [1] In logic, *premise* and *premiss* are regarded as variant spellings of the same word, *premise* being the more common spelling.^{*[1]} Charles Sanders Peirce (1839–1914) argued that *premise* and *premiss* are two distinct words, writing “As to the word *premiss*,—in Latin of the thirteenth Century *praemissa*,—owing to its being so often use in the plural, it has become widely confounded with a totally different word of legal provenance, the 'premises,' that is, the items of an inventory, etc., and hence buildings enumerated in a deed or lease. It is entirely contrary to good English usage to spell premiss, 'premise,' and this spelling...simply betrays ignorance of the history of logic.”^{*[2]}

54.2 References

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- [3] "Argument: a sequence of statements such that some of them (the *premises*) purport to give reasons to accept another of them, the *conclusion*" : *The Cambridge Dictionary of Philosophy, 2nd Edition* (Cambridge University Press), editor Robert Audi, 43.
- [4] p216, Jan Gullberg, Mathematics from the birth of numbers, W. W. Norton & Company; ISBN 0-393-04002-X ISBN 978-0393040029

Chapter 55

Presupposition

For other uses, see [Presupposition \(disambiguation\)](#).

In the branch of linguistics known as **pragmatics**, a **presupposition** (or **ps**) is an implicit assumption about the world or background belief relating to an utterance whose truth is taken for granted in **discourse**. Examples of presuppositions include:

- *Jane no longer writes fiction.*
 - Presupposition: Jane once wrote fiction.
- *Have you stopped eating meat?*
 - Presupposition: you had once eaten meat.
- *Have you talked to Hans?*
 - Presupposition: Hans exists.

A presupposition must be mutually known or assumed by the speaker and addressee for the utterance to be considered appropriate in context. It will generally remain a necessary assumption whether the utterance is placed in the form of an assertion, denial, or question, and can be associated with a specific lexical item or grammatical feature (presupposition trigger) in the utterance.

Crucially, **negation** of an expression does not change its presuppositions: *I want to do it again* and *I don't want to do it again* both presuppose that the subject has done it already one or more times; *My wife is pregnant* and *My wife is not pregnant* both presuppose that the subject has a wife. In this respect, presupposition is distinguished from **entailment** and **implicature**. For example, *The president was assassinated* entails that *The president is dead*, but if the expression is negated, the **entailment** is not **necessarily true**.

55.1 Negation of a sentence containing a presupposition

If presuppositions of a sentence are not consistent with the actual state of affairs, then one of two approaches can be taken. Given the sentences *My wife is pregnant* and *My wife is not pregnant* when one has no wife, then either:

1. Both the sentence and its negation are false; or
2. **Strawson's** approach: Both “my wife is pregnant” and “my wife is not pregnant” use a wrong presupposition (i.e. that there exists a **referent** which can be described with the noun phrase *my wife*) and therefore can not be assigned **truth values**.

Bertrand Russell tries to solve this dilemma with two interpretations of the negated sentence:

1. “There exists exactly one person, who is my wife and who is not pregnant”

2. “There does not exist exactly one person, who is my wife and who is pregnant.”

For the first phrase, Russell would claim that it is false, whereas the second would be true according to him.

55.2 Projection of presuppositions

A presupposition of a part of an utterance is sometimes also a presupposition of the whole utterance, and sometimes not. For instance, the phrase *my wife* triggers the presupposition that I have a wife. The first sentence below carries that presupposition, even though the phrase occurs inside an embedded clause. In the second sentence, however, it does not. John might be mistaken about his belief that I have a wife, or he might be deliberately trying to misinform his audience, and this has an effect on the meaning of the second sentence, but, perhaps surprisingly, not on the first one.

1. John thinks that **my wife** is beautiful.
2. John said that **my wife** is beautiful.

Thus, this seems to be a property of the main verbs of the sentences, *think* and *say*, respectively. After work by Lauri Karttunen,*[1] verbs that allow presuppositions to “pass up” to the whole sentence (“project”) are called **holes**, and verbs that block such passing up, or *projection* of presuppositions are called **plugs**. Some linguistic environments are intermediate between plugs and holes: They block some presuppositions and allow others to project. These are called **filters**. An example of such an environment are *indicative conditionals* (“If-then” clauses). A conditional sentence contains an *antecedent* and a *consequent*. The antecedent is the part preceded by the word “if,” and the consequent is the part that is (or could be) preceded by “then.” If the consequent contains a presupposition trigger, and the triggered presupposition is explicitly stated in the antecedent of the conditional, then the presupposition is blocked. Otherwise, it is allowed to project up to the entire conditional. Here is an example:

If **I have a wife**, then **my wife** is blonde.

Here, the presupposition triggered by the expression *my wife* (that I have a wife) is blocked, because it is stated in the antecedent of the conditional: That sentence doesn't imply that I have a wife. In the following example, it is not stated in the antecedent, so it is allowed to project, i.e. the sentence *does* imply that I have a wife.

If it's already 4am, then **my wife** is probably angry.

Hence, conditional sentences act as *filters* for presuppositions that are triggered by expressions in their consequent.

A significant amount of current work in *semantics* and pragmatics is devoted to a proper understanding of when and how presuppositions project.

55.3 Presupposition triggers

A presupposition trigger is a lexical item or linguistic construction which is responsible for the presupposition.* [2] The following is a selection of presuppositional triggers following Stephen C. Levinson's classic textbook on *Pragmatics*, which in turn draws on a list produced by Lauri Karttunen. As is customary, the presuppositional triggers themselves are italicized, and the symbol » stands for 'presupposes'.*[3]

55.3.1 Definite descriptions

Main article: *Definite description*

Definite descriptions are phrases of the form “the X” where X is a noun phrase. The description is said to be *proper* when the phrase applies to exactly one object, and conversely, it is said to be *improper* when either there exist more than one potential referents, as in “the senator from Ohio”, or none at all, as in “the king of France”. In conventional speech, definite descriptions are implicitly assumed to be proper, hence such phrases trigger the presupposition that the referent is unique and existent.

- John saw *the man with two heads*.
»there exists a man with two heads.

55.3.2 Factive verbs

See also: Epistemology § Truth

In Western epistemology, there is a tradition originating with Plato of defining knowledge as justified true belief. On this definition, for someone to know X, it is required that X be true. A linguistic question thus arises regarding the usage of such phrases: does a person who states “John knows X” implicitly claim the truth of X? Steven Pinker explored this question in a popular science format in a 2007 book on language and cognition, using a widely publicized example from a speech by a U.S. president. * [4] A 2003 speech by George W. Bush included the line, “British Intelligence has learned that Saddam Hussein recently sought significant quantities of uranium from Africa.” * [5] Over the next few years, it became apparent that this intelligence lead was incorrect. But the way the speech was phrased, using a factive verb, implicitly framed the lead as truth rather than hypothesis. The *factivity thesis*, the proposition that relational predicates having to do with knowledge, such as *knows*, *learn*, *remembers*, and *realized*, presuppose the factual truth of their object, however, was subject to notable criticism by Allan Hazlett. * [6]

- Martha *regrets* drinking John's home brew.
»Martha drank John's home brew.
- Frankenstein was *aware* that Dracula was there.
»Dracula was there.
- John *realized* that he was in debt.
»John was in debt.
- It was *odd* how proud he was.
»He was proud.

Some further factive predicates: *know*; *be sorry that*; *be proud that*; *be indifferent that*; *be glad that*; *be sad that*.

55.3.3 Implicative verbs

- John *managed* to open the door.
»John tried to open the door.
- John *forgot* to lock the door.
»John ought to have locked, or intended to lock, the door.

Some further implicative predicates: *X happened to V* » X didn't plan or intend to V; *X avoided V* » X was expected to, or usually did, or ought to V, etc.

55.3.4 Change of state verbs

- John *stopped* teasing his wife.
»John had been teasing his wife.
- Joan *began* teasing her husband.
»Joan hadn't been teasing her husband.

Some further change of state verbs: *start*; *finish*; *carry on*; *cease*; *take* (as in *X took Y from Z* » Y was at/in/with Z); *leave*; *enter*; *come*; *go*; *arrive*; etc.

55.3.5 Iteratives

- The flying saucer came *again*.
»The flying saucer came before.
- You can't get gobstoppers *anymore*.
»You once could get gobstoppers.
- Carter *returned* to power.
»Carter held power before.

Further iteratives: *another time; to come back; restore; repeat; for the nth time*.

55.3.6 Temporal clauses

- *Before* Strawson was even born, Frege noticed presuppositions.
»Strawson was born.
- *While* Chomsky was revolutionizing linguistics, the rest of social science was asleep.
»Chomsky was revolutionizing linguistics.
- *Since* Churchill died, we've lacked a leader.
»Churchill died.

Further temporal clause constructors: *after; during; whenever; as* (as in *As John was getting up, he slipped*).

55.3.7 Cleft sentences

- *Cleft construction*: It was Henry that kissed Rosie.
»Someone kissed Rosie.
- *Pseudo-cleft construction*: What John lost was his wallet.
»John lost something.

55.3.8 Comparisons and contrasts

Comparisons and contrasts may be marked by stress (or by other prosodic means), by particles like “too”, or by comparatives constructions.

- Marianne called Adolph a male chauvinist, and then *HE* insulted *HER*.
»For Marianne to call Adolph a male chauvinist would be to insult him.
- Carol *is a better linguist than* Barbara.
»Barbara is a linguist.

55.3.9 Counterfactual conditionals

- *If* the notice *had* only said 'mine-field' in Welsh as well as in English, we *would* never have lost poor Llewellyn.
»The notice didn't say 'mine-field' in Welsh.

55.3.10 Questions

Presuppose a seeking for what is sought.

55.3.11 Possessive case

- John's children are very noisy.
»John has children.

55.4 Accommodation of presuppositions

A presupposition of a sentence must normally be part of the **common ground** of the utterance context (the shared knowledge of the **interlocutors**) in order for the sentence to be felicitous. Sometimes, however, sentences may carry presuppositions that are not part of the common ground and nevertheless be felicitous. For example, I can, upon being introduced to someone, **out of the blue** explain that *my wife is a dentist*, this without my addressee having ever heard, or having any reason to believe that I have a wife. In order to be able to interpret my utterance, the addressee must assume that I have a wife. This process of an addressee assuming that a presupposition is true, even in the absence of explicit information that it is, is usually called **presupposition accommodation**. We have just seen that presupposition triggers like *my wife* (**definite descriptions**) allow for such accommodation. In “Presupposition and Anaphora: Remarks on the Formulation of the Projection Problem”, * [7] the philosopher Saul Kripke noted that some presupposition triggers do not seem to permit such accommodation. An example of that is the presupposition trigger **too**. This word triggers the presupposition that, roughly, something parallel to what is stated has happened. For example, if pronounced with emphasis on *John*, the following sentence triggers the presupposition that somebody other than John had dinner in New York last night.

John had dinner in New York last night, too.

But that presupposition, as stated, is completely trivial, given what we know about New York. Several million people had dinner in New York last night, and that in itself doesn't satisfy the presupposition of the sentence. What is needed for the sentence to be felicitous is really that somebody relevant to the interlocutors had dinner in New York last night, and that this has been mentioned in the previous discourse, or that this information can be recovered from it. Presupposition triggers that disallow accommodation are called **anaphoric** presupposition triggers.

55.5 Presupposition in Critical discourse analysis

Critical discourse analysis (CDA) seeks to identify presuppositions of an ideological nature. CDA is critical, not only in the sense of being analytical, but also in the ideological sense. * [8] Van Dijk (2003) says CDA “primarily studies the way social power abuse, dominance, and inequality” operate in **speech acts** (including written text)—“text and talk”. * [8] Van Dijk describes CDA as written from a particular point of view: * [8] “dissent research” aimed to “expose” and “resist social inequality.” * [8] One notable feature of ideological presuppositions researched in CDA is a concept termed **synthetic personalisation**.

55.6 See also

- Fallacy of many questions
- Loaded question
- Performative contradiction
- Exception that proves the rule
- Assumption/Presumption (similar words)

55.7 References

- [1] Karttunen, Lauri (1974) . *Theoretical Linguistics* 1 181-94. Also in *Pragmatics: A Reader*, Steven Davis (ed.), pages 406-415, Oxford University Press, 1991.

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Chapter 56

Proposition

This article is about the term in logic and philosophy. For other uses, see [Proposition \(disambiguation\)](#).
Not to be confused with [preposition](#).

The term ***proposition*** has a broad use in [contemporary philosophy](#). It is used to refer to some or all of the following: the [primary bearers of truth-value](#), the objects of [belief](#) and other "[propositional attitudes](#)" (i.e., what is believed, doubted, etc.), the [referents](#) of that-clauses and the [meanings](#) of declarative [sentences](#). Propositions are the sharable objects of attitudes and the primary bearers of truth and falsity. This stipulation rules out certain candidates for propositions, including thought- and utterance-tokens which are not sharable, and concrete events or facts, which cannot be false.* [1]

56.1 Historical usage

56.1.1 By Aristotle

[Aristotelian logic](#) identifies a proposition as a sentence which affirms or denies a [predicate](#) of a [subject](#). An Aristotelian proposition may take the form "All men are mortal" or "Socrates is a man." In the first example the subject is "All men" and the predicate "are mortal." In the second example the subject is "Socrates" and the predicate is "is a man."

56.1.2 By the logical positivists

Often propositions are related to [closed sentences](#) to distinguish them from what is expressed by an [open sentence](#). In this sense, propositions are "statements" that are [truth-bearers](#). This conception of a proposition was supported by the philosophical school of [logical positivism](#).

Some philosophers argue that some (or all) kinds of speech or actions besides the declarative ones also have propositional content. For example, [yes–no questions](#) present propositions, being inquiries into the [truth value](#) of them. On the other hand, some [signs](#) can be declarative assertions of propositions without forming a sentence nor even being linguistic, e.g. traffic signs convey definite meaning which is either true or false.

Propositions are also spoken of as the content of [beliefs](#) and similar [intentional attitudes](#) such as desires, preferences, and hopes. For example, "I desire *that I have a new car*," or "I wonder *whether it will snow*" (or, whether it is the case that "it will snow"). Desire, belief, and so on, are thus called propositional attitudes when they take this sort of content.

56.1.3 By Russell

[Bertrand Russell](#) held that propositions were structured entities with objects and properties as constituents. Wittgenstein held that a proposition is the set of possible worlds/states of affairs in which it is true. One important difference between these views is that on the Russellian account, two propositions that are true in all the same states of affairs

can still be differentiated. For instance, the proposition that two plus two equals four is distinct on a Russellian account from three plus three equals six. If propositions are sets of possible worlds, however, then all mathematical truths (and all other necessary truths) are the same set (the set of all possible worlds).

56.2 Relation to the mind

In relation to the mind, propositions are discussed primarily as they fit into **propositional attitudes**. Propositional attitudes are simply attitudes characteristic of **folk psychology** (belief, desire, etc.) that one can take toward a proposition (e.g. 'it is raining,' 'snow is white,' etc.). In English, propositions usually follow folk psychological attitudes by a "that clause" (e.g. "Jane believes *that* it is raining"). In **philosophy of mind** and **psychology**, mental states are often taken to primarily consist in propositional attitudes. The propositions are usually said to be the "mental content" of the attitude. For example, if Jane has a mental state of believing that it is raining, her mental content is the proposition 'it is raining.' Furthermore, since such mental states are *about* something (namely propositions), they are said to be **intentional** mental states. Philosophical debates surrounding propositions as they relate to propositional attitudes have also recently centered on whether they are internal or external to the agent or whether they are mind-dependent or mind-independent entities (see the entry on **internalism and externalism** in philosophy of mind).

56.3 Treatment in logic

As noted above, in **Aristotelian logic** a proposition is a particular kind of sentence, one which affirms or denies a **predicate** of a **subject**. Aristotelian propositions take forms like "All men are mortal" and "Socrates is a man."

Propositions show up in formal logic as objects of a formal language. A formal language begins with different types of symbols. These types can include **variables**, **operators**, **function symbols**, **predicate (or relation) symbols**, **quantifiers**, and **propositional constants**. (Grouping symbols are often added for convenience in using the language but do not play a logical role.) Symbols are **concatenated** together according to **recursive** rules in order to construct strings to which **truth-values** will be assigned. The rules specify how the operators, function and predicate symbols, and quantifiers are to be concatenated with other strings. A proposition is then a string with a specific form. The form that a proposition takes depends on the type of logic.

The type of logic called **propositional, sentential, or statement logic** includes only operators and propositional constants as symbols in its language. The propositions in this language are propositional constants, which are considered atomic propositions, and composite propositions, which are composed by recursively applying operators to propositions. *Application* here is simply a short way of saying that the corresponding concatenation rule has been applied.

The types of logics called **predicate, quantificational, or n -order logic** include variables, operators, predicate and function symbols, and quantifiers as symbols in their languages. The propositions in these logics are more complex. First, **terms** must be defined. A term is (i) a variable or (ii) a function symbol applied to the number of terms required by the function symbol's **arity**. For example, if $+$ is a binary function symbol and x , y , and z are variables, then $x+(y+z)$ is a term, which might be written with the symbols in various orders. A proposition is (i) a predicate symbol applied to the number of terms required by its arity, (ii) an operator applied to the number of propositions required by its arity, or (iii) a quantifier applied to a proposition. For example, if $=$ is a binary predicate symbol and $\forall$ is a quantifier, then $\forall x,y,z [(x = y) \rightarrow (x+z = y+z)]$ is a proposition. This more complex structure of propositions allows these logics to make finer distinctions between inferences, i.e., to have greater expressive power.

In this context, propositions are also called sentences, statements, statement forms, formulas, and well-formed formulas, though these terms are usually not synonymous within a single text. This definition treats propositions as **syntactic** objects, as opposed to **semantic** or **mental** objects. That is, propositions in this sense are meaningless, formal, abstract objects. They are assigned meaning and truth-values by mappings called **interpretations** and **valuations**, respectively.

56.4 Objections to propositions

Attempts to provide a workable definition of proposition include

Two meaningful declarative sentences express the same proposition if and only if they mean the same thing.

thus defining *proposition* in terms of synonymy. For example, “Snow is white” (in English) and “Schnee ist weiß” (in German) are different sentences, but they say the same thing, so they express the same proposition.

Two meaningful declarative sentence-tokens express the same proposition if and only if they mean the same thing.

Unfortunately, the above definition has the result that two sentences/sentence-tokens which have the same meaning and thus express the same proposition, could have different truth-values, e.g. “I am Spartacus” said by Spartacus and said by John Smith; and e.g. “It is Wednesday” said on a Wednesday and on a Thursday.

A number of philosophers and linguists claim that all definitions of a proposition are too vague to be useful. For them, it is just a misleading concept that should be removed from philosophy and semantics. W.V. Quine maintained that the indeterminacy of translation prevented any meaningful discussion of propositions, and that they should be discarded in favor of sentences. [2] Strawson advocated the use of the term “statement”.

56.5 See also

- Main contention

56.6 References

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56.7 External links

- Stanford Encyclopedia of Philosophy articles on:
 - Propositions, by Matthew McGrath
 - Singular Propositions, by Greg Fitch
 - Structured Propositions, by Jeffrey C. King

Chapter 57

Question

For other uses, see [Question \(disambiguation\)](#). To ask questions about Wikipedia, see [Wikipedia:Questions](#).

A **question** is a linguistic expression used to make a request for **information**, or the request made using such an expression. The information requested should be provided in the form of an **answer**.

Questions have developed a range of uses that go beyond the simple eliciting of information from another party. **Rhetorical questions**, for example, are used to make a point, and are not expected to be answered. Many languages have special **grammatical** forms for questions (for example, in the English **sentence** “Are you happy?”, the **inversion** of the subject *you* and the verb *are* shows it to be a question rather than a statement). However questions can also be asked without using these **interrogative** grammatical structures – for example one may use an **imperative**, as in “Tell me your name” .

For detailed information about the grammar of question formation, see [Interrogative](#), and for English specifically, [English grammar: Questions](#).

57.1 Uses

The principal use of questions is to elicit information from the person being addressed, by indicating, more or less precisely, the information which the speaker (or writer) desires. However questions can also be used for a number of other purposes. Questions may be asked for the purpose of testing someone's knowledge, as in a **quiz** or **examination**. Raising a question may guide the questioner along an avenue of **research** (see **Socratic method**). A rhetorical question is asked to make a point, and does not expect an answer (often the answer is implied or obvious). Some questions are used principally as polite requests, as with “Would you pass the salt?”

Pre-suppositional or **loaded questions**, such as “Have you stopped beating your wife?” may be used as a joke or to embarrass an audience, because any answer a person could give would imply more information than he was willing to affirm.

Questions can also be used as titles of works of literature, art and scholarship. Examples include **Leo Tolstoy's** short story *How Much Land Does a Man Need?*, the painting *And When Did You Last See Your Father?*, the movie *What About Bob?*, and the academic work *Who Asked the First Question?*.

57.1.1 By purpose

Various categorizations of questions have been proposed. With regard to research projects, one system distinguishes:^{*}[\[2\]](#)

- *descriptive questions*, used primarily with the aim of describing the existence of some thing or process
- *relational questions*, designed to look at the relationships between two or more variables
- *causal questions*, designed to determine whether certain variables affect one or more outcome variables

For the purpose of surveys, one type of question asked is the **closed-ended** (also *closed* or *dichotomous*) question, usually requiring a yes/no answer or the choice of an option(s) from a list (see also **multiple choice**). There are also *nominal questions*, designed to inquire about a level of quantitative measure, usually making connections between a number and a concept (as in “1 = Moderate; 2 = Severe; 3 = ...”).* [3] **Open-ended** or *open* questions give the respondent greater freedom to provide information or opinions on a topic. (The distinction between closed and open questions is applied in a variety of other contexts too, such as **job interviewing**.) Surveys also often contain *qualifying questions* (also called *filter questions* or *contingency questions*), which serve to determine whether the respondent needs to continue on to answer subsequent questions.

Some types of questions that may be used in an educational context are listed in **Bloom's Taxonomy** of educational objectives. These include questions designed to test and promote:

- Knowledge: **Who, what, when, where, why, how . . . ?** Describe . . . ?
- Comprehension: Retell . . .
- Application: How is . . . an example of . . . ?; How is . . . related to . . . ?; Why is . . . significant?
- Analysis: What are the parts or features of . . . ? Classify . . . according to . . . ;
- Synthesis: What would you infer from . . . ? What ideas can you add to . . . ? How would you design a new . . . ? What would happen if you combined . . . ? What solutions would you suggest for . . . ?
- Evaluation: Do you agree that . . . ? What do you think about . . . ? What is the most important . . . ? Place the following in order of priority . . . ? How would you decide about . . . ? What criteria would you use to assess . . . ? * [4]

McKenzie's “Questioning Toolkit” * [5] lists 17 types of questions, and suggests that thinkers need to orchestrate and combine these types. * [6] Examples of these question types include the *irreverent question*, the *apparently irrelevant question*, the *hypothetical question* and the *unanswerable question*. Questions can also be *infelicitous*, being based on incorrect and illogical premises (e.g. “Why do cats have green wings?”).

57.1.2 By grammatical form

Questions that ask whether or not some statement is true are called **yes–no questions** (or *polar questions*), since they can in principle be answered by a “yes” or “no” (or similar words or expressions in other languages). Examples include “Do you take sugar?”, “Should they be believed?” and “Am I the loneliest person in the world?”

A type of question that is similar in form to a yes–no question, but is not intended to be answered with a “yes” or “no”, is the *alternative question* * [7] (or *choice question*). This presents two or more alternative answers, as in “Do you want fish or lamb?”, or “Are you supporting England, Ireland or Wales?”. The expected response is one of the alternatives, or some other indication such as “both” or “neither” (questionnaire forms sometimes contain an option “none of the above” or similar for such questions). Because of their similarity in form to yes–no questions, they may sometimes be answered “yes” or “no”, possibly humorously or as a result of misunderstanding.

The other main type of question (other than yes–no questions) is those called **wh-questions** (or *non-polar questions*). These use **interrogative words** (*wh*-words) such as *when, which, who, how*, etc. to specify the information that is desired. (In some languages the formation of such questions may involve **wh-movement** – see the section below for grammatical description.) The name derives from the fact that most of the English interrogative words (with the exception of *how*) begin with the letters *wh*. These are the types of question sometimes referred to in journalism and other investigative contexts as the **Five Ws**.

Tag questions are a grammatical structure in which a declarative statement or an imperative is turned into a question by adding an interrogative fragment (the “tag”), such as *right* in “You remembered the eggs, right?”, or *isn't it* in “It's cold today, isn't it?” Tag questions can be answered with a yes or no.

As well as direct questions (such as *Where are my keys?*), there also exist **indirect questions** (also called *interrogative content clauses*), such as *where my keys are*. These are used as **subordinate clauses** in sentences such as “I wonder where my keys are” and “Ask him where my keys are.” Indirect questions do not necessarily follow the same rules of grammar as direct questions. For example, in English and some other languages, indirect questions are formed without inversion of subject and verb (compare the word order in “where are they?” and “(I wonder) where they are”). Indirect questions may also be subject to the changes of **tense** and other changes that apply generally to **indirect speech**.

57.2 Grammar

Main article: [Interrogative](#)

Languages may use both **syntax** and **prosody** to distinguish interrogative sentences (which pose questions) from **declarative sentences** (which state propositions). Syntax refers to grammatical changes, such as moving words around or adding question words; prosody refers here to changes in **intonation** while speaking.

In **English**, **German**, **French** and various other languages, questions are marked by a distinct **word order** featuring **inversion** – the subject is placed after the **verb** rather than before it: “You are cold” becomes “Are you cold?” However, English allows such inversion only with a particular class of verbs (called auxiliary or **special verbs**), and thus sometimes requires the addition of an auxiliary *do*, *does* or *did* before inversion can take place (“He sings” → “Does he sing?”) – for details see [do-support](#).

In some languages, yes–no questions are marked by an **interrogative particle**, such as the Japanese か *ka*, Mandarin 吗 *ma* and Polish *czy*. Also, in languages generally, *wh*-questions are marked by an **interrogative word** (*wh*-word) such as *what*, *where* or *how*. In languages such as English this word generally moves to the front of the sentence (***wh*-fronting**), and subject–verb inversion occurs as in yes–no questions, but in some other languages these changes in word order are not necessary (e.g. Mandarin 你要什么? *nǐ yào shénme*, meaning “what do you want?” is literally “you want what?”).

Intonation patterns characteristic of questions often involve a raised pitch near the end of the sentence. In English this occurs especially for yes–no questions; it may also be used for sentences that do not have the grammatical form of questions, but are nonetheless intended to elicit information (**declarative questions**), as in “You’re not using this?”

In languages written in **Latin**, **Cyrillic** or certain other scripts, a **question mark** at the end of a sentence identifies questions in writing. (In **Spanish** an additional **inverted mark** is placed at the beginning: ¿*Cómo está usted?* “How are you?”.) As with intonation, this feature is not restricted to sentences having the grammatical form of questions – it may also indicate a sentence’s **pragmatic** function.

57.3 Responses

The most typical response to a question is an **answer** that provides the information indicated as being sought by the questioner. This may range from a simple **yes** or **no** (in the case of yes–no questions) to a more complex or detailed answer. (An answer may be *correct* or *incorrect*, depending on whether the information it presents is true or false.) Of course other responses to a question are also possible, such as “I don’t know” or some other indication of inability or unwillingness to provide a direct answer to the question.

“Negative questions” are interrogative sentences which contain negation in their phrasing, such as “Shouldn’t you be working?”. These can have different ways of expressing affirmation and denial from the standard form of question, and they can be confusing, since it is sometimes unclear whether the answer should be the opposite of the answer to the non-negated question. For example, if one does not have a passport, both “Do you have a passport?” and “Don’t you have a passport?” are properly answered with “No”, despite apparently asking opposite questions. The Japanese language avoids this ambiguity. Answering “No” to the second of these in Japanese would mean, “I *do* have a passport”.

A similar ambiguous question in English is “Do you mind if...?” The responder may reply unambiguously “Yes, I do mind,” if they do mind, or “No, I don’t mind,” if they don’t, but a simple “No” or “Yes” answer can lead to confusion, as a single “No” can seem like a “Yes, I do mind” (as in “No, please don’t do that”), and a “Yes” can seem like a “No, I don’t mind” (as in “Yes, go ahead”). An easy way to bypass this confusion would be to ask a non-negative question, such as “Is it all right with you if...?”

Some languages have different particles (for example the **French** “*si*”, the **German** “*doch*” or the **Danish** and **Norwegian** “*jo*”) to answer negative questions (or negative statements) in an affirmative way; they provide a means to express contradiction.

More information on these issues can be found in the articles [Yes–no question](#), [Yes and no](#), and [Answer ellipsis](#).

57.4 Learning

Questions are used from the most elementary stage of learning to original research. In the **scientific method**, a question often forms the basis of the investigation and can be considered a transition between the observation and hypothesis stages. Students of all ages use questions in their learning of topics, and the skill of having learners creating “investigatable” questions is a central part of **inquiry education**. The **Socratic method** of questioning student responses may be used by a teacher to lead the student towards the truth without direct instruction, and also helps students to form logical conclusions.

A widespread and accepted use of questions in an educational context is the assessment of students' knowledge through exams.

57.5 Philosophical questions

The **philosophical** questions are **conceptual**, not factual questions. There are questions that are not fully answered by any other. Philosophy deals with questions that arise when people reflect on their lives and their world. Some philosophical questions are practical: for example, “Is **euthanasia** justifiable?”, “Does the state have the right to censor pornography or restrict tobacco advertising?”, “To what extent are **Māori** and **Pākehā** today responsible for decisions made by their ancestors?”.

Other philosophical questions are more **theoretical**, although they often arise through thinking about practical issues. The questions just listed, for example, may prompt more general philosophical questions about the circumstances under which it may be morally justifiable to take a life, or about the extent to which the state may restrict the liberty of the individual. Some fascinating, 'classic', questions of philosophy are speculative and theoretical and concern the nature of knowledge, reality and human existence: for example, “What, if anything, can be known with certainty?”, “Is the mind essentially non-physical?”, “Are values absolute or relative?”, “Does the universe need explanation in terms of a Supreme Intelligence?”, “What, if anything, is the meaning or purpose of human existence?”. Finally, the philosophical questions are typically about conceptual issues; they are often questions about our concepts and the relation between our concepts and the world they represent. Every question implies a statement and every statement implies a question.* [8]

57.6 Origins of questioning behavior

Enculturated apes **Kanzi**, **Washoe**, **Sarah** and a few others who underwent extensive language training programs (with the use of gestures and other visual forms of communications) successfully learned to *answer* quite complex questions and requests (including question words “who” “what” , “where”), although so far they failed to learn how to *ask questions themselves*. For example, **David and Anne Premack** wrote: “Though she [Sarah] understood the question, she did not herself ask any questions —unlike the child who asks interminable questions, such as What that? Who making noise? When Daddy come home? Me go Granny's house? Where puppy? Sarah never delayed the departure of her trainer after her lessons by asking where the trainer was going, when she was returning, or anything else” .* [9] The ability to ask questions is often assessed in relation to comprehension of **syntactic structures**. It is widely accepted, that the first questions are asked by humans during their early infancy, at the pre-syntactic, one word stage of **language development**, with the use of question **intonation**.* [10]

57.7 See also

- Answer
- Debate
- Doubt
- Phrasal exclamation
- Inquiry
- Interrobang

- Interrogation
- Interrogative word
- Interrogatory
- Leading question
- Logic
- Problem
- Proposition
- Question mark
- Rhetorical question
- Sentence (linguistics)
- Sentence function
- Truth
- Twenty Questions
- *Who Asked the First Question?*

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Chapter 58

Question dodging

Question dodging is the intentional avoidance of answering a **question**.

This may happen when the person questioned either does not know the answer and wants to avoid embarrassment, or when the person is being **interrogated** or questioned in **debate**, and wants to avoid giving a direct response. ^[1] Overt question dodging can sometimes be employed humorously, in order to sidestep giving a public answer in a political discussion: when a reporter asked Mayor **Richard J. Daley** why **Hubert Humphrey** had lost the state of Illinois in the **1968 presidential election**, Daley replied “He lost it because he didn't get enough votes.” ^[2]

A false accusation of question dodging can sometimes be made as a disingenuous tactic in debate, in the **informal fallacy** of the **loaded question**. A common way out of this argument is not to answer the question (e.g. with a simple 'yes' or 'no'), but to challenge the assumption behind the question. This can lead the person questioned to be accused of “dodging the question”.

58.1 Form

Often the aim of dodging a question is to make it seem as though the question was fulfilled. The person who asked the question feeling satisfied with the answer, unaware that the question was not properly answered.

The form of a dodged question, this example being “Why are you here?”, could be:

- **Refusing to answer** (“*No comment.*”)
- **Stalling** (“*Give me a minute.*”)
- **Changing the subject** (“*Your shoelace is undone.*”)
- **Explaining redundant things to distract one's focus** (“*Well I arrived here 10 minutes ago and I decided that...*”)
- **Creating an excuse not to answer** (“*I'm feeling sick, I can't answer now.*”)
- **Repeating the question** (“*Why are you here?*”)
- **Answering the question with another question** (“*Why do you think I'm here?*”)
- **Answering things that weren't asked** (“*I'm in the corridor.*”)
- **Questioning the question** (“*Are you sure that's relevant?*”)
- **Challenging the question** (“*You assume I am here for a reason.*”)
- **Giving an answer in the wrong context** (“*Because I was born.*”)

58.2 See also

- Question
- Begging the question
- Evasion (ethics)

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Chapter 59

Referent

A **referent** /'refərənt/ is a person or thing to which a linguistic expression or other symbol refers. For example, in the sentence *Mary saw me*, the referent of the word *Mary* is the particular person called Mary who is being spoken of, while the referent of the word *me* is the person uttering the sentence.

Two expressions which have the same referent are said to be **co-referential**. In the sentence *John had his dog with him*, for instance, the noun *John* and the pronoun *him* are co-referential, since they both refer to the same person (John).

59.1 Etymology and meanings

The word may be considered to derive from the Latin *referentem*, the present participle (in accusative form) of the verb *referre* (“carry back” , see also etymology of *refer(ence)*); or simply from the addition of the suffix *-ent* to the verb *refer* on the model of other English words having that suffix. It is defined in the Merriam-Webster Dictionary as “one that refers or is referred to; especially: the thing that a symbol (as a word or sign) stands for.” ^[1]

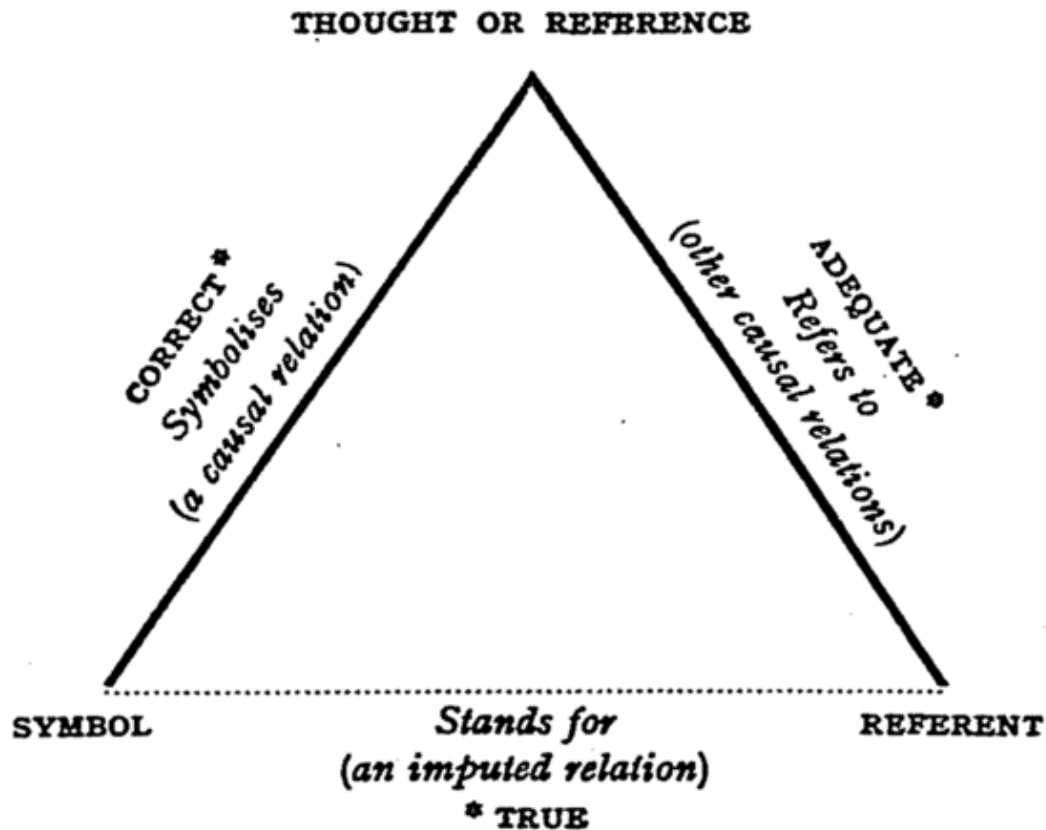
The earliest meaning of *referent* recorded in the *Oxford English Dictionary* is “one who is referred to or consulted” , dating from 1844. A subsequent meaning is “a word referring to another”; the OED gives only one citation for this use, dating from 1899 (which speaks of “referent words or referents” that express a relation). The next meaning, which appears to stand in opposition to the previous meaning, as well as to the meaning implied by the etymology, is nonetheless the one which has gained currency: “that to which something [particularly a word or expression] has reference” . This sense is first recorded in Ogden and Richards' *The Meaning of Meaning* (1923; see further below); the OED also lists numerous subsequent examples of that usage.

In logic, the word *referent* is sometimes used to denote one of the two objects participating in a relation, the other being called the **relatum**. ^[2]

59.2 In semantics

In fields such as semantics and semiotics, a distinction is made between a referent and a reference. Reference is a relationship in which a symbol or sign (a word, for example) signifies something; the referent is the thing signified. The referent may be an actual person or object, or may be something more abstract, such as a set of actions. ^[3]^[4]

Reference and referents were considered at length in the 1923 book *The Meaning of Meaning* by the Cambridge scholars C. K. Ogden and I. A. Richards. Ogden has pointed out that reference is a psychological process, and that referents themselves may be psychological – existing in the imagination of the referrer, and not necessarily in the real world. ^[5] For further ideas related to this observation, see absent referent and failure to refer.



The triangle of reference, from Ogden and Richards' The Meaning of Meaning.

59.3 In syntax

Considerations of the possible arrangement of expressions which may be *co-referential* – having the same referent – have been undertaken by linguists engaged in the study of syntax, particularly since Noam Chomsky's launch of Government and Binding Theory in the 1980s. The subject of binding is largely concerned with the possible syntactic positions of co-referential noun phrases and pronouns. Attempts are made to explain phenomena such as that illustrated by the following pair of sentences:

- Before she dried off, Mary was wet.
- She dried off because Mary was wet.

In the first sentence, *she* and *Mary* may have the same referent (*she* may refer to *Mary*), but in the second they normally cannot. More details of these considerations can be found in the articles on GBT and binding linked to above.

59.4 In computing

Considerations of references and their referents are sometimes of importance in computing and programming.*[6] References play a role in the Perl programming language, for example, and the *ref* function is used to obtain the type of the referent of an object.*[7]

59.5 References

- [1] “Referent – Definition and More from the Free Merriam-Webster Dictionary” . merriam-webster.com. Retrieved 2012-08-17.
- [2] *Oxford English Dictionary*, Second Edition (1989), entry for *referent*.
- [3] Hildegard E. Peplau, *Interpersonal Relations in Nursing: A Conceptual Frame ...* (2004), p. 289: “Each concept or word has both a referent and a reference. The word is the symbol; the reference is its meaning held in the mind of its user; and the referent is the actions or object the symbol signified.”
- [4] David M. Miller, *The net of Hephaestus: A study of modern criticism* (1971): “... then, the general quality of 'dogness' suggested by the recurrence of similar sense perceptions is abstracted and stored in the memory. We now have a Referent and a Reference. Next, a symbol is constructed: visual and linguistic.”
- [5] Correspondence from C. K. Ogden to **Whately Carington**, quoted in *C. K. Ogden and Linguistics*, Psychology Press, 1994, vol. 1, p. xxiii: “A 'reference' and a 'referent' are parts of a sign or symbol situation [...] 'Visualizing', as such, is not relevant. References are always 'psychological' in a sign or symbol situation; referents may be psychological, i.e., in the order of the referrer's imaginings; ...”
- [6] Édouard Viktorovich Popov *Talking with computers in natural language* - 1986 - 305 pages - The problem of correspondence between a referent and a reference can also be expressed using descriptions. This can be done as follows: When entities are encountered in a text, an understanding system (either human being or computer) ...
- [7] *ref*, perldoc.perl.org

59.6 External links

- The dictionary definition of **referent** at Wiktionary

Chapter 60

Regress argument

The **regress argument** (also known as the *diallelus* (Latin < Greek *di allelon* “through or by means of one another”)) is a problem in **epistemology** and, in general, a problem in any situation where a statement has to be justified. * [1] * [2] * [3]

According to this **argument**, any **proposition** requires a **justification**. However, any justification itself requires support. This means that any proposition whatsoever can be endlessly (infinitely) questioned.

60.1 Origin

The argument is usually attributed to Sextus Empiricus, and has been restated by Agrippa as part of what has become known as "Agrippa's trilemma". The argument can be seen as a response to the suggestion in Plato's *Theaetetus* that knowledge is justified true belief.

60.2 Structure

Assuming that knowledge is justified true belief, then:

1. Suppose that P is some piece of knowledge. Then P is a *justified* true belief.
2. The only thing that can justify P is another statement – let's call it P₁; so P₁ justifies P.
3. But if P₁ is to be a satisfactory justification for P, then we must *know* that P₁.
4. But for P₁ to be known, it must also be a *justified* true belief.
5. *That* justification will be another statement - let's call it P₂; so P₂ justifies P₁.
6. But if P₂ is to be a satisfactory justification for P₁, then we must *know* that P₂ is true
7. But for P₂ to count as knowledge, it must itself be a *justified* true belief.
8. *That* justification will in turn be another statement - let's call it P₃; so P₃ justifies P₂.
9. and so on, *ad infinitum*.

60.3 Responses

The above presents us with three possible counter-arguments: some statements do not need justification; the chain of reasoning loops back on itself; or the sequence never finishes.

60.3.1 Foundationalism

Perhaps the chain begins with a belief that is justified, but which is not justified by another belief. Such beliefs are called basic beliefs. In this solution, which is called **foundationalism**, all beliefs are justified by basic beliefs. Foundationalism seeks to escape the regress argument by claiming that there are some beliefs for which it is improper to ask for a justification. (See also *a priori*.) This would be a claim that some things (basic beliefs) are true in and of themselves.

Foundationalism is the belief that a chain of justification begins with a belief that is justified, but which is not justified by another belief. Thus, a belief is justified **if and only if**:

1. it is a basic/foundational belief, or
2. it is justified by a basic belief
3. it is justified by a chain of beliefs that is ultimately justified by a basic belief or beliefs.

Foundationalism can be compared to a building. Ordinary individual beliefs occupy the upper stories of the building; basic, or foundational beliefs are down in the basement, in the foundation of the building, holding everything else up. In a similar way, individual beliefs, say about economics or ethics, rest on more basic beliefs, say about the nature of human beings; and those rest on still more basic beliefs, say about the mind; and in the end the entire system rests on a set of basic beliefs which are not justified by other beliefs.

60.3.2 Coherentism

Alternatively, the chain of reasoning may loop around on itself, forming a circle. In this case, the justification of any statement is used, perhaps after a long chain of reasoning, in justifying itself, and the argument is **circular**. This is a version of **coherentism**.

Coherentism is the belief that an idea is justified **if and only if** it is part of a coherent system of mutually supporting beliefs (i.e., beliefs that support each other). In effect Coherentism denies that justification can only take the form of a chain. Coherentism replaces the chain with a holistic web.

The most common objection to naïve Coherentism is that it relies on the idea that circular justification is acceptable. In this view, P ultimately supports P, **begging the question**. Coherentists reply that it is not just P that is supporting P, but P along with the totality of the other statements in the whole system of belief.

Coherentism accepts any belief that is part of a coherent system of beliefs. In contrast, P can cohere with P_1 and P_2 without P, P_1 or P_2 being true. Instead, Coherentists might say that it is very unlikely that the whole system would be both untrue and consistent, and that if some part of the system was untrue, it would almost certainly be inconsistent with some other part of the system.

A third objection is that some beliefs arise from experience and not from other beliefs. An example is that one is looking into a room which is totally dark. The lights turn on momentarily and one sees a white canopy bed in the room. The belief that there is a white canopy bed in this room is based entirely on experience and not on any other belief. Of course other possibilities exist, such as that the white canopy bed is entirely an illusion or that one is hallucinating, but the belief remains well-justified. Coherentists might respond that the belief which supports the belief that there is a white canopy bed in this room is that one saw the bed, however briefly. This appears to be an immediate qualifier which does not depend on other beliefs, and thus seems to prove that Coherentism is not true because beliefs can be justified by concepts other than beliefs. But others have argued that the experience of seeing the bed is indeed dependent on other beliefs, about what a bed, a canopy and so on, actually look like.

Another objection is that the rule demanding “coherence” in a system of ideas seems to be an unjustified belief.

60.3.3 Infitism

Infitism argues that the chain can go on forever. Critics argue that this means there is never adequate justification for any statement in the chain.

60.3.4 Skepticism

Skeptics reject the three above responses and argue that beliefs cannot be justified as beyond doubt. Note that many skeptics do not deny that things may appear in a certain way. However, such sense impressions cannot, in the skeptical view, be used to find beliefs that cannot be doubted. Also, skeptics do not deny that, for example, many laws of nature give the appearance of working or that doing certain things give the appearance of producing pleasure/pain or even that reason and logic seem to be useful tools. Skepticism is in this view valuable since it encourages continued investigation.* [4]

60.4 Synthesized approaches

60.4.1 Common sense

The method of common sense espoused by such philosophers as **Thomas Reid** and **G. E. Moore** points out that whenever we investigate anything at all, whenever we start thinking about some subject, we have to make assumptions. When one tries to support one's assumptions with reasons, one must make yet more assumptions. Since it is inevitable that we will make some assumptions, why not assume those things that are most obvious: the matters of common sense that no one ever seriously doubts.

"Common sense" here does not mean old adages like "Chicken soup is good for colds" but statements about the background in which our experiences occur. Examples would be "Human beings typically have two eyes, two ears, two hands, two feet", or "The world has a ground and a sky" or "Plants and animals come in a wide variety of sizes and colors" or "I am **conscious** and alive right now". These are all the absolutely most obvious sorts of claims that one could possibly make; and, said Reid and Moore, these are the claims that make up *common sense*.

This view can be seen as either a version of foundationalism, with common sense statements taking the role of basic statements, or as a version of Coherentism. In this case, commonsense statements are statements that are so crucial to keeping the account coherent that they are all but impossible to deny.

If the method of common sense is correct, then philosophers may take the principles of common sense for granted. They do not need criteria in order to judge whether a proposition is true or not. They can also take some justifications for granted, according to common sense. They can get around Sextus' problem of the criterion because there is no **infinite regress** or circle of reasoning, because **the buck stops with** (see also idiom) the principles of common sense.

60.4.2 Critical philosophy

Another escape from the diallelus is **critical philosophy**, which denies that beliefs should ever be *justified* at all. Rather, the job of philosophers is to subject all beliefs (including beliefs about truth criteria) to *criticism*, attempting to discredit them rather than justifying them. Then, these philosophers say, it is rational to act on those beliefs that have best withstood criticism, whether or not they meet any specific criterion of truth. **Karl Popper** expanded on this idea to include a *quantitative* measurement he called **verisimilitude**, or truth-likeness. He showed that even if one could never justify a particular claim, one *can* compare the verisimilitude of two competing claims by criticism to judge which is superior to the other.

60.4.3 Pragmatism

The **pragmatist** philosopher **William James** suggests that, ultimately, everyone settles at some level of explanation based on one's personal preferences that fit the particular individual's psychological needs. People select whatever level of explanation fits their needs, and things other than logic and reason determine those needs. In *The Sentiment of Rationality*, James compares the philosopher, who insists on a high degree of justification, and the boor, who accepts or rejects ideals without much thought:

The philosopher's logical tranquillity is thus in essence no other than the boor's. They differ only as to the point at which each refuses to let further considerations upset the absoluteness of the data he assumes.

60.5 See also

- Epistemology
- Münchhausen trilemma
- Plato's *Theaetetus*
- Problem of the criterion

60.6 References

- [1] Stanford Encyclopedia of Philosophy
- [2] Theory of Knowledge
- [3] University of Reading
- [4] skepticism on *Stanford Encyclopedia of Philosophy*

Chapter 61

Rhetoric

This article is about the art of rhetoric in general. For the work by Aristotle, see [Rhetoric \(Aristotle\)](#). “Rhetorical Strategies” redirects here. For modes of persuasion, see [rhetorical strategies](#).

Rhetoric (pronounced /ˈrɛtərɪk/) is the art of [discourse](#), an art that aims to improve the capability of writers or



Painting depicting a lecture in a knight academy, painted by Pieter Isaacsz or Reinhold Timm for Rosenborg Castle as part of a series of seven paintings depicting the seven independent arts. This painting illustrates rhetorics.

speakers to inform, persuade, or motivate particular audiences in specific situations.*^[1] As a subject of formal study and a productive civic practice, rhetoric has played a central role in the European tradition.*^[2] Its best known definition comes from [Aristotle](#), who considers it a counterpart of both logic and politics, and calls it “the faculty of observing in any given case the available means of [persuasion](#).”*^[3] Rhetorics typically provide [heuristics](#) for understanding, discovering, and developing arguments for particular situations, such as Aristotle's three persuasive audience appeals, [logos](#), [pathos](#), and [ethos](#). The five canons of rhetoric, which trace the traditional tasks in designing a

persuasive speech, were first codified in classical Rome: *invention*, *arrangement*, *style*, *memory*, and *delivery*. Along with *grammar* and *logic* (or *dialectic*—see *Martianus Capella*), rhetoric is one of the *three ancient arts of discourse*.

From *Ancient Greece* to the late 19th century, it was a central part of Western education, filling the need to train public speakers and writers to move audiences to action with arguments.*[4] The word is derived from the Greek *ῥητορικός* *rhētorikós*, “oratorical”,*[5] from *ῥήτωρ* *rhētōr*, “public speaker”,*[6] related to *ῥῆμα* *rhēma*, “that which is said or spoken, word, saying”,*[7] and ultimately derived from the verb *ἔρω* *erō*, “I say, I speak”.*[8]

61.1 Uses of rhetoric

61.1.1 Scope of rhetoric

Scholars have debated the scope of rhetoric since ancient times. Although some have limited rhetoric to the specific realm of political discourse, many modern scholars liberate it to encompass every aspect of culture. Contemporary studies of rhetoric address a more diverse range of domains than was the case in ancient times. While classical rhetoric trained speakers to be effective persuaders in public forums and institutions such as courtrooms and assemblies, contemporary rhetoric investigates human discourse *writ large*. Rhetoricians have studied the discourses of a wide variety of domains, including the natural and social sciences, fine art, religion, journalism, digital media, fiction, history, cartography, and architecture, along with the more traditional domains of politics and the law.*[9] Many contemporary approaches treat rhetoric as human communication that includes purposeful and strategic manipulation of symbols. Public relations, lobbying, law, marketing, professional and technical writing, and advertising are modern professions that employ rhetorical practitioners.

Because the ancient Greeks highly valued public political participation, rhetoric emerged as a crucial tool to influence politics. Consequently, rhetoric remains associated with its political origins. However, even the original instructors of Western speech—the *Sophists*—disputed this limited view of rhetoric. According to the Sophists, such as *Gorgias*, a successful rhetorician could speak convincingly on any topic, regardless of his experience in that field. This method suggested rhetoric could be a means of communicating any expertise, not just politics. In his *Encomium to Helen*, Gorgias even applied rhetoric to fiction by seeking for his own pleasure to prove the blamelessness of the mythical *Helen of Troy* in starting the *Trojan War*.*[10]

Looking to another key rhetorical theorist, *Plato* defined the scope of rhetoric according to his negative opinions of the art. He criticized the Sophists for using rhetoric as a means of deceit instead of discovering truth. In “*Gorgias*,” one of his *Socratic Dialogues*, Plato defines rhetoric as the persuasion of ignorant masses within the courts and assemblies.*[11] Rhetoric, in Plato's opinion, is merely a form of flattery and functions similarly to cookery, which masks the undesirability of unhealthy food by making it taste good. Thus, Plato considered any speech of lengthy *prose* aimed at flattery as within the scope of rhetoric.

Aristotle both redeemed rhetoric from his teacher and narrowed its focus by defining three genres of rhetoric—*deliberative*, *forensic* or *judicial*, and *epideictic*.*[12] Yet, even as he provided order to existing rhetorical theories, Aristotle extended the definition of rhetoric, calling it the ability to identify the appropriate means of persuasion in a given situation, thereby making rhetoric applicable to all fields, not just politics. When one considers that rhetoric included torture (in the sense that the practice of torture is a form of persuasion or coercion), it is clear that rhetoric cannot be viewed only in academic terms. However, the *enthymeme* based upon *logic* (especially, based upon the syllogism) was viewed as the basis of rhetoric.

However, since the time of Aristotle, logic has changed. For example, *Modal logic* has undergone a major development that also modifies rhetoric.*[13] Yet, Aristotle also outlined generic constraints that focused the rhetorical art squarely within the domain of public political practice. He restricted rhetoric to the domain of the *contingent* or *probable*: those matters that admit multiple legitimate opinions or arguments.

The contemporary *neo-Aristotelian* and *neo-Sophistic* positions on rhetoric mirror the division between the Sophists and Aristotle. Neo-Aristotelians generally study rhetoric as political discourse, while the neo-Sophistic view contends that rhetoric cannot be so limited. Rhetorical scholar *Michael Leff* characterizes the conflict between these positions as viewing rhetoric as a “thing contained” versus a “container.” The neo-Aristotelian view threatens the study of rhetoric by restraining it to such a limited field, ignoring many critical applications of rhetorical theory, criticism, and practice. Simultaneously, the neo-Sophists threaten to expand rhetoric beyond a point of coherent theoretical value.

Over the past century, people studying rhetoric have tended to enlarge its object domain beyond speech texts. *Kenneth Burke* asserted humans use rhetoric to resolve conflicts by identifying shared characteristics and interests in symbols. By nature, humans engage in *identification*, either to identify themselves or another individual with a group. This

definition of rhetoric as identification broadened the scope from strategic and overt political persuasion to the more implicit tactics of identification found in an immense range of sources.* [14]

Among the many scholars who have since pursued Burke's line of thought, James Boyd White sees rhetoric as a broader domain of social experience in his notion of *constitutive rhetoric*. Influenced by theories of *social construction*, White argues that culture is “reconstituted” through language. Just as language influences people, people influence language. Language is socially constructed, and depends on the meanings people attach to it. Because language is not rigid and changes depending on the situation, the very usage of language is rhetorical. An author, White would say, is always trying to construct a new world and persuading his or her readers to share that world within the text.* [15]

Individuals engage in the rhetorical process anytime they speak or produce meaning. Even in the field of *science*, the practices of which were once viewed as being merely the objective testing and reporting of knowledge, scientists must persuade their audience to accept their findings by sufficiently demonstrating that their study or experiment was conducted reliably and resulted in sufficient evidence to support their conclusions.

The vast scope of rhetoric is difficult to define; however, political discourse remains, in many ways, the paradigmatic example for studying and theorizing specific techniques and conceptions of persuasion, considered by many a synonym for “rhetoric.”* [16]

61.1.2 Rhetoric as a civic art

Throughout *European History*, rhetoric has concerned itself with persuasion in public and political settings such as assemblies and courts. Because of its associations with democratic institutions, rhetoric is commonly said to flourish in open and democratic societies with rights of *free speech*, free assembly, and political enfranchisement for some portion of the population. Those who classify rhetoric as a civic art believe that rhetoric has the power to shape communities, form the character of citizens and greatly impact civic life.

Rhetoric was viewed as a civic art by several of the ancient philosophers. Aristotle and Isocrates were two of the first to see rhetoric in this light. In his work, *Antidosis*, Isocrates states, “We have come together and founded cities and made laws and invented arts; and, generally speaking, there is no institution devised by man which the power of speech has not helped us to establish.” With this statement he argues that rhetoric is a fundamental part of civic life in every society and that it has been necessary in the foundation of all aspects of society. He further argues in his piece *Against the Sophists* that rhetoric, although it cannot be taught to just anyone, is capable of shaping the character of man. He writes, “I do think that the study of political discourse can help more than any other thing to stimulate and form such qualities of character.” Aristotle, writing several years after Isocrates, supported many of his arguments and continued to make arguments for rhetoric as a civic art.

In the words of Aristotle, in his essay *Rhetoric*, rhetoric is “... the faculty of observing in any given case the available means of persuasion.” According to Aristotle, this art of persuasion could be used in public settings in three different ways. He writes in Book I, Chapter III, “A member of the assembly decides about future events, a juryman about past events: while those who merely decide on the orator's skill are observers. From this it follows that there are three divisions of oratory- (1) political, (2) forensic, and (3) the ceremonial oratory of display” . Eugene Garver, in his critique of “Aristotle's Rhetoric” , confirms that Aristotle viewed rhetoric as a civic art. Garver writes, “Rhetoric articulates a civic art of rhetoric, combining the almost incompatible properties of *techne* and appropriateness to citizens.”* [17] Each of Aristotle's divisions plays a role in civic life and can be used in a different way to impact cities.

Because rhetoric is a public art capable of shaping opinion, some of the ancients including Plato found fault in it. They claimed that while it could be used to improve civic life, it could be used equally easily to deceive or manipulate with negative effects on the city. The masses were incapable of analyzing or deciding anything on their own and would therefore be swayed by the most persuasive speeches. Thus, civic life could be controlled by the one who could deliver the best speech. Plato's explores the problematic moral status of rhetoric twice: in *Gorgias*, a *dialogue* named for the famed Sophist, and in *The Phaedrus*, a dialogue best known for its commentary on love.

More trusting in the power of rhetoric to support a republic, the Roman orator Cicero argued that art required something more than eloquence. A good orator needed also to be a good man, a person enlightened on a variety of civic topics. He describes the proper training of the orator in his major text on rhetoric, *De Oratore*, modeled on Plato's dialogues.

Modern day works continue to support the claims of the ancients that rhetoric is an art capable of influencing civic life. In his work *Political Style*, Robert Hariman claims, “Furthermore, questions of freedom, equality, and justice

often are raised and addressed through performances ranging from debates to demonstrations without loss of moral content” .*[18] James Boyd White argues further that rhetoric is capable not only of addressing issues of political interest but that it can influence culture as a whole. In his book, *When Words Lose Their Meaning*, he argues that words of persuasion and identification define community and civic life. He states that words produce “... the methods by which culture is maintained, criticized, and transformed.” *[19] Both White and Hariman agree that words and rhetoric have the power to shape culture and civic life.

In modern times, rhetoric has consistently remained relevant as a civic art. In speeches, as well as in non-verbal forms, rhetoric continues to be used as a tool to influence communities from local to national levels.

61.1.3 Rhetoric as a course of study

Rhetoric as a course of study has evolved significantly since its ancient beginnings. Through the ages, the study and teaching of rhetoric has adapted to the particular exigencies of the time and venue.*[20] The study of rhetoric has conformed to a multitude of different applications, ranging from architecture to literature.*[21] Although the curriculum has transformed in a number of ways, it has generally emphasized the study of principles and rules of composition as a means for moving audiences. Generally speaking, the study of rhetoric trains students to speak and/or write effectively, as well as critically understand and analyze discourse.

Rhetoric began as a civic art in Ancient Greece where students were trained to develop tactics of oratorical persuasion, especially in legal disputes. Rhetoric originated in a school of pre-Socratic philosophers known as the Sophists circa 600 BC. Demosthenes and Lysias emerged as major orators during this period, and Isocrates and Gorgias as prominent teachers. Rhetorical education focused on five particular canons: *inventio* (invention), *dispositio* (arrangement), *elocutio* (style), *memoria* (memory), and *actio* (delivery). Modern teachings continue to reference these rhetorical leaders and their work in discussions of classical rhetoric and persuasion.

Rhetoric was later taught in universities during the Middle Ages as one of the three original liberal arts or trivium (along with logic and grammar).*[22] During the medieval period, political rhetoric declined as republican oratory died out and the emperors of Rome garnered increasing authority. With the rise of European monarchs in following centuries, rhetoric shifted into the courtly and religious applications. Augustine exerted strong influence on Christian rhetoric in the Middle Ages, advocating the use of rhetoric to lead audiences to truth and understanding, especially in the church. The study of liberal arts, he believed, contributed to rhetorical study: “In the case of a keen and ardent nature, fine words will come more readily through reading and hearing the eloquent than by pursuing the rules of rhetoric.” *[23] Poetry and letter writing, for instance, became a central component of rhetorical study during the Middle Ages.*[24] After the fall of the Republic in Rome, poetry became a tool for rhetorical training since there were fewer opportunities for political speech.*[25] Letter writing was the primary form through which business was conducted both in state and church, so it became an important aspect of rhetorical education.*[26]

Rhetorical education became more restrained as style and substance separated in 16th-century France with Peter Ramus, and attention turned to the scientific method. That is, influential scholars like Ramus argued that the processes of invention and arrangement should be elevated to the domain of philosophy, while rhetorical instruction should be chiefly concerned with the use of figures and other forms of the ornamentation of language. Scholars such as Francis Bacon developed the study of “scientific rhetoric.”*[27] This concentration rejected the elaborate style characteristic of the classical oration. This plain language carried over to John Locke's teaching, which emphasized concrete knowledge and steered away from ornamentation in speech, further alienating rhetorical instruction, which was identified wholly with this ornamentation, from the pursuit of knowledge.

In the 18th century, rhetoric assumed a more social role, initiating the creation of new education systems. “Elocution schools” arose (predominantly in England) in which females analyzed classic literature, most notably the works of William Shakespeare, and discussed pronunciation tactics.*[28]

The study of rhetoric underwent a revival with the rise of democratic institutions during the late 18th and early 19th centuries. Scotland's author and theorist Hugh Blair served as a key leader of this movement during the late 18th century. In his most famous work “Lectures on Rhetoric and Belles Lettres” , he advocates rhetorical study for common citizens as a resource for social success. Many American colleges and secondary schools used Blair's text throughout the 19th century to train students of rhetoric.*[29]

Political rhetoric also underwent renewal in the wake of the US and French revolutions. The rhetorical studies of ancient Greece and Rome were resurrected in the studies of the era as speakers and teachers looked to Cicero and others to inspire defense of the new republic. Leading rhetorical theorists included John Quincy Adams of Harvard who advocated the democratic advancement of rhetorical art. Harvard's founding of the Boylston Professorship of

Rhetoric and Oratory sparked the growth of rhetorical study in colleges across the United States.* [26] Harvard's rhetoric program drew inspiration from literary sources to guide organization and style.

Debate clubs and lyceums also developed as forums in which common citizens could hear speakers and sharpen debate skills. The American lyceum in particular was seen as both an educational and social institution, featuring group discussions and guest lecturers.* [30] These programs cultivated democratic values and promoted active participation in political analysis.

Throughout the 20th century, rhetoric developed as a concentrated field of study with the establishment of rhetorical courses in high schools and universities. Courses such as **public speaking** and **speech analysis** apply fundamental Greek theories (such as the modes of persuasion: **ethos**, **pathos**, and **logos**) as well as trace rhetorical development throughout the course of history. Rhetoric has earned a more esteemed reputation as a field of study with the emergence of **Communication Studies** departments in university programs and in conjunction with the linguistic turn. Rhetorical study has broadened in scope, and is especially utilized by the fields of marketing, politics, and literature.

Rhetoric, as an area of study, is concerned with how humans use symbols, especially language, to reach agreement that permits coordinated effort of some sort.* [31] **Harvard University**, the first university in the United States, based on the European model, taught a basic curriculum, including rhetoric. Rhetoric, in this sense, how to properly give speeches, played an important role in their training. Rhetoric was soon taught in departments of English as well.* [32]

61.1.4 Rhetoric and knowledge

The relationship between rhetoric and knowledge is an old and interesting philosophical problem, partly because of our different assumptions on the nature of knowledge. But it is fairly clear that while knowledge is primarily concerned with truth (i.e. assuming that there is such a thing as truth), rhetoric is primarily concerned with statements and their effects on the audience. The word “rhetoric” may also refer to “empty speak”, which reflects an indifference to truth, and in this sense rhetoric is adversarial to knowledge. Plato famously criticized the Sophists for their rhetoric which had persuaded people to sentence his friend Socrates to death regardless of what was true. However, rhetoric is also used in the construction of true arguments, or in identifying what is relevant, the crux of the matter, in a selection of true but otherwise trivial statements. Hence, rhetoric is also closely related to knowledge.

61.2 History

Rhetoric has its origins in **Mesopotamia**.* [33] Some of the earliest examples of rhetoric can be found in the **Akkadian** writings of the princess and priestess **Enheduanna** (ca. 2285–2250 BC),* [34] while later examples can be found in the **Neo-Assyrian Empire** during the time of **Sennacherib** (704–681 BC).* [35] In **ancient Egypt**, rhetoric had existed since at least the **Middle Kingdom period** (ca. 2080–1640 BC). The **Egyptians** held eloquent speaking in high esteem, and it was a skill that had a very high value in their society. The “Egyptian rules of rhetoric” also clearly specified that “knowing when not to speak is essential, and very respected, rhetorical knowledge.” Their “approach to rhetoric” was thus a “balance between eloquence and wise silence.” Their rules of speech also strongly emphasized “adherence to social behaviors that support a conservative status quo” and they held that “skilled speech should support, not question, society.”* [36] In **ancient China**, rhetoric dates back to the **Chinese philosopher, Confucius** (551–479 BC), and continued with later followers. The tradition of **Confucianism** emphasized the use of **eloquence** in speaking.* [37] The use of rhetoric can also be found in the ancient **Biblical** tradition.* [38]

In **ancient Greece**, the earliest mention of oratorical skill occurs in **Homer's *Iliad***, where heroes like **Achilles**, **Hector**, and **Odysseus** were honored for their ability to advise and exhort their peers and followers (the *Laos* or army) in wise and appropriate action. With the rise of the democratic *polis*, speaking skill was adapted to the needs of the public and political life of cities in ancient Greece, much of which revolved around the use of **oratory** as the medium through which political and judicial decisions were made, and through which philosophical ideas were developed and disseminated. For modern students today, it can be difficult to remember that the wide use and availability of written texts is a phenomenon that was just coming into vogue in **Classical Greece**. In Classical times, many of the great thinkers and political leaders performed their works before an audience, usually in the context of a competition or contest for fame, political influence, and cultural capital; in fact, many of them are known only through the texts that their students, followers, or detractors wrote down. As has already been noted, *rhetor* was the Greek term for *orator*: A *rhetor* was a citizen who regularly addressed juries and political assemblies and who was thus understood to have gained some knowledge about public speaking in the process, though in general facility with language was often referred to as *logôn techne*, “skill with arguments” or “verbal artistry.”* [39]

Rhetoric thus evolved as an important art, one that provided the orator with the forms, means, and strategies for persuading an audience of the correctness of the orator's arguments. Today the term *rhetoric* can be used at times to refer only to the form of argumentation, often with the pejorative connotation that rhetoric is a means of obscuring the truth. Classical philosophers believed quite the contrary: the skilled use of rhetoric was essential to the discovery of truths, because it provided the means of ordering and clarifying arguments.

61.2.1 Sophists

Main article: [Sophists](#)

In Europe, organized thought about public speaking began in ancient Greece.* [40] Possibly, the first study about the power of language may be attributed to the philosopher Empedocles (d. ca. 444 BC), whose theories on human knowledge would provide a basis for many future rhetoricians. The first written manual is attributed to Corax and his pupil Tisias. Their work, as well as that of many of the early rhetoricians, grew out of the courts of law; Tisias, for example, is believed to have written judicial speeches that others delivered in the courts. Teaching in oratory was popularized in the 5th century BC by itinerant teachers known as sophists, the best known of whom were Protagoras (c.481-420 BC), Gorgias (c.483-376 BC), and Isocrates (436-338 BC). The Sophists were a disparate group who travelled from city to city, teaching in public places to attract students and offer them an education. Their central focus was on *logos* or what we might broadly refer to as discourse, its functions and powers. They defined parts of speech, analyzed poetry, parsed close synonyms, invented argumentation strategies, and debated the nature of reality. They claimed to make their students “better,” or, in other words, to teach virtue. They thus claimed that human “excellence” was not an accident of fate or a prerogative of noble birth, but an art or “*techne*” that could be taught and learned. They were thus among the first humanists. Several sophists also questioned received wisdom about the gods and the Greek culture, which they believed was taken for granted by Greeks of their time, making them among the first agnostics. For example, they argued that cultural practices were a function of convention or *nomos* rather than blood or birth or *physis*. They argued even further that morality or immorality of any action could not be judged outside of the cultural context within which it occurred. The well-known phrase, “Man is the measure of all things” arises from this belief. One of their most famous, and infamous, doctrines has to do with probability and counter arguments. They taught that every argument could be countered with an opposing argument, that an argument's effectiveness derived from how “likely” it appeared to the audience (its probability of seeming true), and that any probability argument could be countered with an inverted probability argument. Thus, if it seemed likely that a strong, poor man were guilty of robbing a rich, weak man, the strong poor man could argue, on the contrary, that this very likelihood (that he would be a suspect) makes it unlikely that he committed the crime, since he would most likely be apprehended for the crime. They also taught and were known for their ability to make the weaker (or worse) argument the stronger (or better). Aristophanes famously parodies the clever inversions that sophists were known for in his play *The Clouds*.

The word “sophistry” developed strong negative connotations in ancient Greece that continue today, but in ancient Greece sophists were nevertheless popular and well-paid professionals, widely respected for their abilities but also widely criticized for their excesses.

61.2.2 Isocrates

Main article: [Isocrates](#)

Isocrates (436-338 BC), like the sophists, taught public speaking as a means of human improvement, but he worked to distinguish himself from the Sophists, whom he saw as claiming far more than they could deliver. He suggested that while an art of virtue or excellence did exist, it was only one piece, and the least, in a process of self-improvement that relied much more heavily on native talent and desire, constant practice, and the imitation of good models. Isocrates believed that practice in speaking publicly about noble themes and important questions would function to improve the character of both speaker and audience while also offering the best service to a city. In fact, Isocrates was an outspoken champion of rhetoric as a mode of civic engagement.*[41] He thus wrote his speeches as “models” for his students to imitate in the same way that poets might imitate Homer or Hesiod, seeking to inspire in them a desire to attain fame through civic leadership. His was the first permanent school in Athens and it is likely that Plato's Academy and Aristotle's Lyceum were founded in part as a response to Isocrates. Though he left no handbooks, his speeches (“*Antidosis*” and “*Against the Sophists*” are most relevant to students of rhetoric) became models of oratory (he was

one of the canonical "Ten Attic Orators") and keys to his entire educational program. He had a marked influence on Cicero and Quintilian, and through them, on the entire educational system of the west.

61.2.3 Plato

Main articles: Plato and Platonism

Plato (427-347 BC) famously outlined the differences between true and false rhetoric in a number of dialogues; particularly the *Gorgias* and *Phaedrus* dialogues wherein Plato disputes the sophistic notion that the art of persuasion (the sophists' art, which he calls "rhetoric"), can exist independent of the art of dialectic. Plato claims that since sophists appeal only to what seems probable, they are not advancing their students and audiences, but simply flattering them with what they want to hear. While Plato's condemnation of rhetoric is clear in the *Gorgias*, in the *Phaedrus* he suggests the possibility of a true art wherein rhetoric is based upon the knowledge produced by dialectic, and relies on a dialectically informed rhetoric to appeal to the main character, Phaedrus, to take up philosophy. Thus Plato's rhetoric is actually dialectic (or philosophy) "turned" toward those who are not yet philosophers and are thus unready to pursue dialectic directly. Plato's animosity against rhetoric, and against the sophists, derives not only from their inflated claims to teach virtue and their reliance on appearances, but from the fact that his teacher, Socrates, was sentenced to death after sophists' efforts.

61.2.4 Aristotle

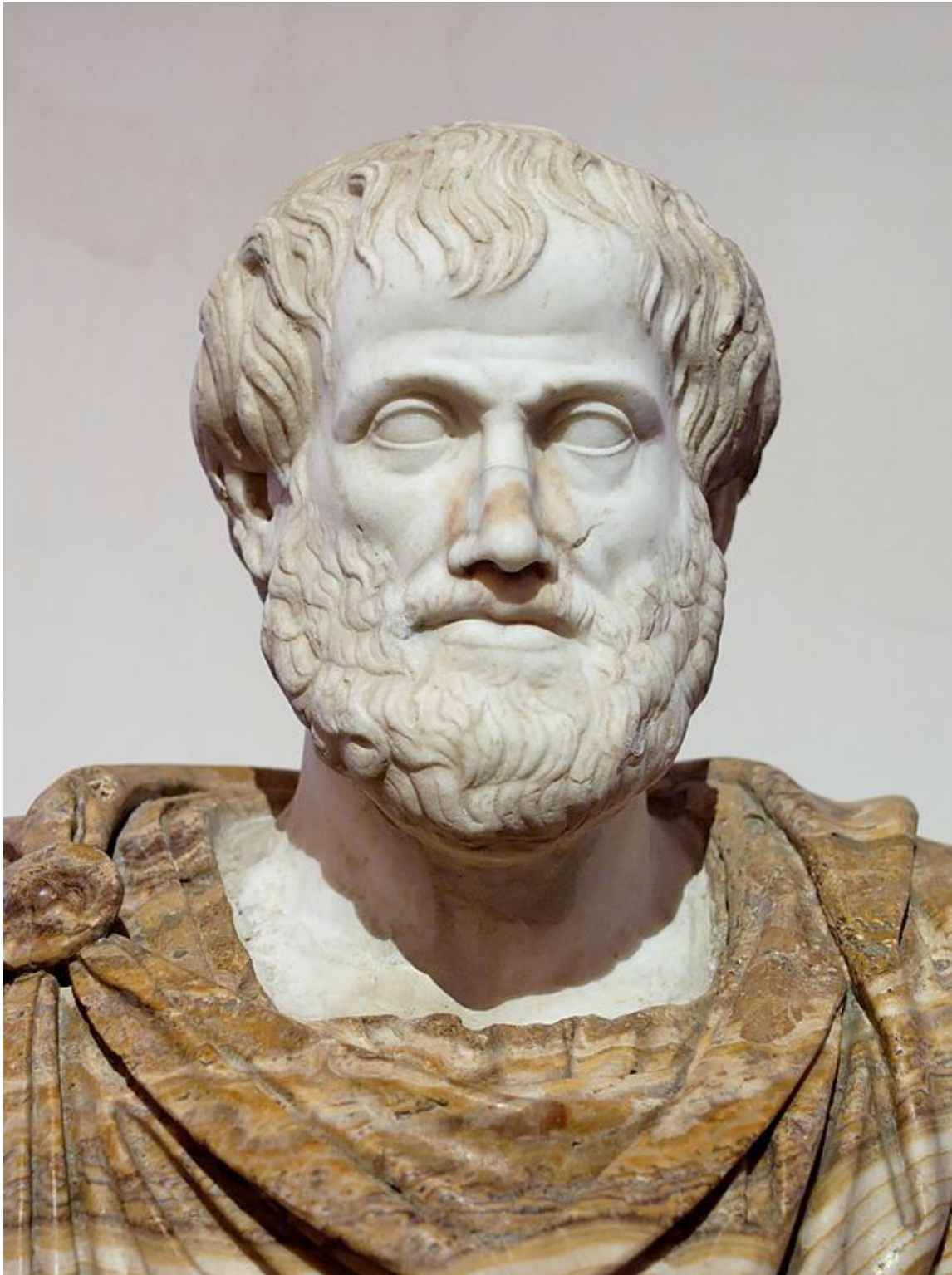
Main article: Rhetoric (Aristotle)

Aristotle (384-322 BC) was a student of Plato who famously set forth an extended treatise on rhetoric that still repays careful study today. In the first sentence of *The Art of Rhetoric*, Aristotle says that "rhetoric is the counterpart [literally, the antistrophe] of dialectic." As the "antistrophe" of a Greek ode responds to and is patterned after the structure of the "strophe" (they form two sections of the whole and are sung by two parts of the chorus), so the art of rhetoric follows and is structurally patterned after the art of dialectic because both are arts of discourse production. Thus, while dialectical methods are necessary to find truth in theoretical matters, rhetorical methods are required in practical matters such as adjudicating somebody's guilt or innocence when charged in a court of law, or adjudicating a prudent course of action to be taken in a deliberative assembly. The core features dialectic include the absence of determined subject matter, its elaboration on earlier empirical practice, the explication of its aims, the type of utility and the definition of the proper function.

For Plato and Aristotle, dialectic involves persuasion, so when Aristotle says that rhetoric is the antistrophe of dialectic, he means that rhetoric as he uses the term has a domain or scope of application that is parallel to, but different from, the domain or scope of application of dialectic. In *Nietzsche Humanist* (1998: 129), Claude Pavur explains that "[t]he Greek prefix 'anti' does not merely designate opposition, but it can also mean 'in place of.'" When Aristotle characterizes rhetoric as the antistrophe of dialectic, he no doubt means that rhetoric is used in place of dialectic when we are discussing civic issues in a court of law or in a legislative assembly. The domain of rhetoric is civic affairs and practical decision making in civic affairs, not theoretical considerations of operational definitions of terms and clarification of thought. These, for him, are in the domain of dialectic.

Aristotle's treatise on rhetoric systematically describes civic rhetoric as a human art or skill (*techne*). It is more of an objective theory than it is an interpretive theory with a rhetorical tradition. Aristotle's art of rhetoric emphasizes persuasion as the purpose of rhetoric. His definition of rhetoric as "the faculty of observing in any given case the available means of persuasion," essentially a mode of discovery, limits the art to the inventional process, and Aristotle heavily emphasizes the logical aspect of this process. In his account, rhetoric is the art of discovering all available means of persuasion. A speaker supports the probability of a message by logical, ethical, and emotional proofs. Some form of *logos*, *ethos*, and *pathos* is present in every possible public presentation that exists. But the treatise in fact also discusses not only elements of style and (briefly) delivery, but also emotional appeals (*pathos*) and characterological appeals (*ethos*).

Aristotle identifies three steps or "offices" of rhetoric—invention, arrangement, and style—and three different types of rhetorical proof: *ethos* (Aristotle's theory of character and how the character and credibility of a speaker can influence an audience to consider him/her to be believable—there being three qualities that contribute to a credible *ethos*: perceived intelligence, virtuous character, and goodwill);* [42] *pathos* (the use of emotional appeals to alter the audience's judgment through metaphor, amplification, storytelling, or presenting the topic in a way that evokes strong emotions in the audience.); and, *logos* (the use of reasoning, either inductive or deductive, to construct an argument).



A marble bust of Aristotle

Aristotle emphasized *enthymematic reasoning* as central to the process of rhetorical invention, though later rhetorical theorists placed much less emphasis on it. An “enthymeme” would follow today's form of a syllogism; however it would exclude either the major or minor premise. An enthymeme is persuasive because the audience is providing the missing premise. Because the audience is able to provide the missing premise, they are more likely to be persuaded by the message.

Aristotle identified three different types or genres of civic rhetoric. *Forensic* (also known as judicial, was concerned

with determining the truth or falseness of events that took place in the past and issues of guilt. An example of forensic rhetoric would be in a courtroom. *Deliberative* (also known as political), was concerned with determining whether or not particular actions should or should not be taken in the future. Making laws would be an example of deliberative rhetoric. *Epideictic* (also known as ceremonial), was concerned with praise and blame, values, right and wrong, demonstrating beauty and skill in the present. Examples of epideictic rhetoric would include a eulogy or a wedding toast.

61.3 Canons

The Five Canons of Rhetoric serve as a guide to creating persuasive messages and arguments. These are invention (the process of developing arguments); style (determining how to present the arguments); arrangement (organizing the arguments for extreme effect); delivery (the gestures, pronunciation, tone and pace used when presenting the persuasive arguments); and memory (the process of learning and memorizing the speech and persuasive messages.)^[43]

In the rhetoric field, there is an intellectual debate about Aristotle's definition of rhetoric. Some believe that Aristotle defines rhetoric in *On Rhetoric* as the art of persuasion, while others think he defines it as the art of judgment. Rhetoric as the art of judgment would mean the rhetor discerns the available means of persuasion with a choice. Aristotle also says rhetoric is concerned with judgment because the audience judges the rhetor's ethos.

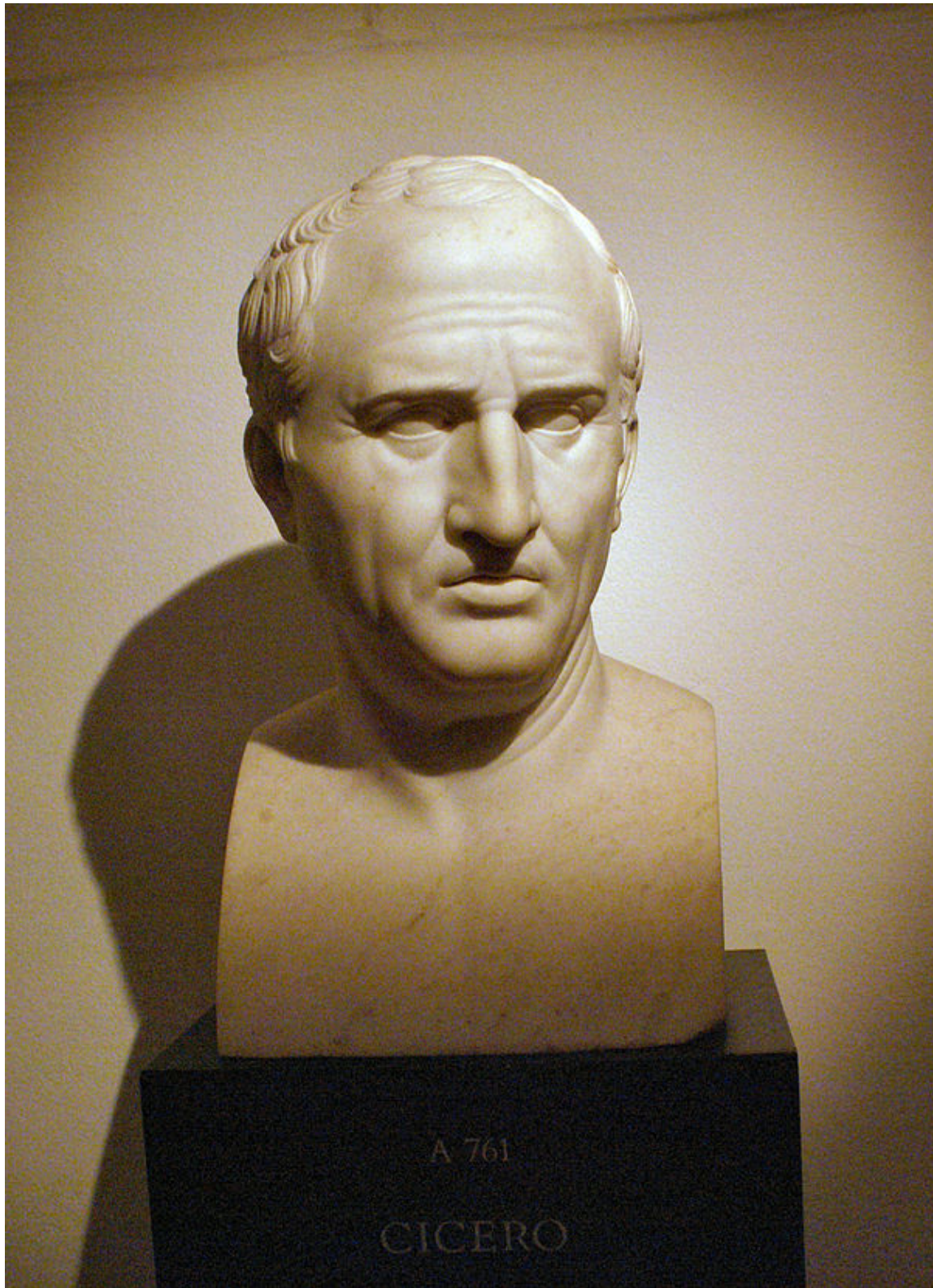
One of the most famous of Aristotelian doctrines was the idea of topics (also referred to as common topics or commonplaces). Though the term had a wide range of application (as a memory technique or compositional exercise, for example) it most often referred to the “seats of argument”—the list of categories of thought or modes of reasoning—that a speaker could use to generate arguments or proofs. The topics were thus a heuristic or inventional tool designed to help speakers categorize and thus better retain and apply frequently used types of argument. For example, since we often see effects as “like” their causes, one way to invent an argument (about a future effect) is by discussing the cause (which it will be “like”). This and other rhetorical topics derive from Aristotle's belief that there are certain predictable ways in which humans (particularly non-specialists) draw conclusions from premises. Based upon and adapted from his dialectical Topics, the rhetorical topics became a central feature of later rhetorical theorizing, most famously in Cicero's work of that name.

61.3.1 Cicero

Main articles: Cicero, Asiatic style, *De Inventione*, *De Oratore*, *Brutus* (Cicero), *De Optimo Genere Oratorum* and *De Partitionibus Oratoriae*

For the Romans, oration became an important part of public life. Cicero (106-43 BC) was chief among Roman rhetoricians and remains the best known ancient orator and the only orator who both spoke in public and produced treatises on the subject. *Rhetorica ad Herennium*, formerly attributed to Cicero but now considered to be of unknown authorship, is one of the most significant works on rhetoric and is still widely used as a reference today. It is an extensive reference on the use of rhetoric, and in the Middle Ages and Renaissance, it achieved wide publication as an advanced school text on rhetoric.

Cicero is considered one of the most significant rhetoricians of all time, charting a middle path between the competing Attic and Asiatic styles to become considered second only to Demosthenes among history's orators.^[44] His works include the early and very influential *De Inventione* (On Invention, often read alongside the *Ad Herennium* as the two basic texts of rhetorical theory throughout the Middle Ages and into the Renaissance), *De Oratore* (a fuller statement of rhetorical principles in dialogue form), *Topics* (a rhetorical treatment of common topics, highly influential through the Renaissance), *Brutus* (Cicero) (a discussion of famous orators) and *Orator* (a defense of Cicero's style). Cicero also left a large body of speeches and letters which would establish the outlines of Latin eloquence and style for generations to come. It was the rediscovery of Cicero's speeches (such as the defense of Archias) and letters (to Atticus) by Italians like Petrarch that, in part, ignited the cultural innovations that we know as the Renaissance. He championed the learning of Greek (and Greek rhetoric), contributed to Roman ethics, linguistics, philosophy, and politics, and emphasized the importance of all forms of appeal (emotion, humor, stylistic range, irony and digression in addition to pure reasoning) in oratory. But perhaps his most significant contribution to subsequent rhetoric, and education in general, was his argument that orators learn not only about the specifics of their case (the *hypothesis*) but also about the general questions from which they derived (the *theses*). Thus, in giving a speech in defense of a poet whose Roman citizenship had been questioned, the orator should examine not only the specifics of that poet's civic status, he should also examine the role and value of poetry and of literature more generally in Roman culture and political life. The orator, said Cicero, needed to be knowledgeable about all areas of human life and culture, including



Bust of Marcus Tullius Cicero

law, politics, history, literature, ethics, warfare, medicine, even arithmetic and geometry. Cicero gave rise to the idea that the “ideal orator” be well-versed in all branches of learning: an idea that was rendered as “liberal humanism,” and that lives on today in liberal arts or general education requirements in colleges and universities around the world.

61.3.2 Quintilian

Main articles: [Quintilian](#) and [Byzantine rhetoric](#)

Quintilian (35-100 AD) began his career as a pleader in the courts of law; his reputation grew so great that [Vespasian](#) created a chair of rhetoric for him in Rome. The culmination of his life's work was the *Institutio Oratoria* (*Institutes of Oratory*, or alternatively, *The Orator's Education*), a lengthy treatise on the training of the orator, in which he discusses the training of the “perfect” orator from birth to old age and, in the process, reviews the doctrines and opinions of many influential rhetoricians who preceded him.

In the *Institutes*, Quintilian organizes rhetorical study through the stages of education that an aspiring orator would undergo, beginning with the selection of a nurse. Aspects of elementary education (training in reading and writing, grammar, and literary criticism) are followed by preliminary rhetorical exercises in composition (the progymnasmata) that include maxims and fables, narratives and comparisons, and finally full legal or political speeches. The delivery of speeches within the context of education or for entertainment purposes became widespread and popular under the term “declamation.” Rhetorical training proper was categorized under five canons that would persist for centuries in academic circles:

- *Inventio* (invention) is the process that leads to the development and refinement of an argument.
- Once arguments are developed, *dispositio* (disposition, or arrangement) is used to determine how it should be organized for greatest effect, usually beginning with the *exordium*.
- Once the speech content is known and the structure is determined, the next steps involve *elocutio* (style) and *pronuntiatio* (presentation).
- *Memoria* (memory) comes to play as the speaker recalls each of these elements during the speech.
- *Actio* (delivery) is the final step as the speech is presented in a gracious and pleasing way to the audience - the Grand Style.

This work was available only in fragments in medieval times, but the discovery of a complete copy at the [Abbey of St. Gall](#) in 1416 led to its emergence as one of the most influential works on rhetoric during the Renaissance.

Quintilian's work describes not just the art of rhetoric, but the formation of the perfect orator as a politically active, virtuous, publicly minded citizen. His emphasis was on the ethical application of rhetorical training, in part a reaction against the growing tendency in Roman schools toward standardization of themes and techniques. At the same time that rhetoric was becoming divorced from political decision making, rhetoric rose as a culturally vibrant and important mode of entertainment and cultural criticism in a movement known as the “second sophistic,” a development that gave rise to the charge (made by Quintilian and others) that teachers were emphasizing style over substance in rhetoric.

61.3.3 Medieval to Enlightenment

After the breakup of the western Roman Empire, the study of rhetoric continued to be central to the study of the verbal arts; but the study of the verbal arts went into decline for several centuries, followed eventually by a gradual rise in formal education, culminating in the rise of medieval universities. But rhetoric transmuted during this period into the arts of letter writing (*ars dictaminis*) and sermon writing (*ars praedicandi*). As part of the *trivium*, rhetoric was secondary to the study of logic, and its study was highly scholastic: students were given repetitive exercises in the creation of discourses on historical subjects (*suasoriae*) or on classic legal questions (*controversiae*).

Although he is not commonly regarded as a rhetorician, [St. Augustine](#) (354-430) was trained in rhetoric and was at one time a professor of Latin rhetoric in Milan. After his conversion to Christianity, he became interested in using these “pagan” arts for spreading his religion. This new use of rhetoric is explored in the Fourth Book of his *De Doctrina Christiana*, which laid the foundation of what would become *homiletics*, the rhetoric of the sermon. Augustine begins the book by asking why “the power of eloquence, which is so efficacious in pleading either for the erroneous cause or the right”, should not be used for righteous purposes (IV.3).

One early concern of the medieval Christian church was its attitude to classical rhetoric itself. [Jerome](#) (d. 420) complained, “What has [Horace](#) to do with the Psalms, [Virgil](#) with the Gospels, [Cicero](#) with the Apostles?” Augustine is also remembered for arguing for the preservation of pagan works and fostering a church tradition that led to conservation of numerous pre-Christian rhetorical writings.

Rhetoric would not regain its classical heights until the renaissance, but new writings did advance rhetorical thought. **Boethius** (480?–524), in his brief *Overview of the Structure of Rhetoric*, continues Aristotle's taxonomy by placing rhetoric in subordination to philosophical argument or dialectic.*[45] The introduction of Arab scholarship from European relations with the **Muslim empire** (in particular **Al-Andalus**) renewed interest in Aristotle and Classical thought in general, leading to what some historians call the 12th century renaissance. A number of medieval grammars and studies of poetry and rhetoric appeared.

Late medieval rhetorical writings include those of **St. Thomas Aquinas** (1225?–1274), **Matthew of Vendome** (*Ars Versificatoria*, 1175?), and **Geoffrey of Vinsauf** (*Poetria Nova*, 1200–1216). Pre-modern female rhetoricians, outside of Socrates' friend **Aspasia**, are rare; but medieval rhetoric produced by women either in religious orders, such as **Julian of Norwich** (d. 1415), or the very well-connected **Christine de Pizan** (1364?–1430?), did occur if not always recorded in writing.

In his 1943 **Cambridge University** doctoral dissertation in English, Canadian **Marshall McLuhan** (1911–1980) surveys the verbal arts from approximately the time of **Cicero** down to the time of **Thomas Nashe** (1567–1600?).*[46] His dissertation is still noteworthy for undertaking to study the history of the verbal arts together as the trivium, even though the developments that he surveys have been studied in greater detail since he undertook his study. As noted below, McLuhan became one of the most widely publicized thinkers in the 20th century, so it is important to note his scholarly roots in the study of the history of rhetoric and dialectic.

Another interesting record of medieval rhetorical thought can be seen in the many animal debate poems popular in England and the continent during the Middle Ages, such as **The Owl and the Nightingale** (13th century) and **Geoffrey Chaucer's Parliament of Fowls** (1382?).

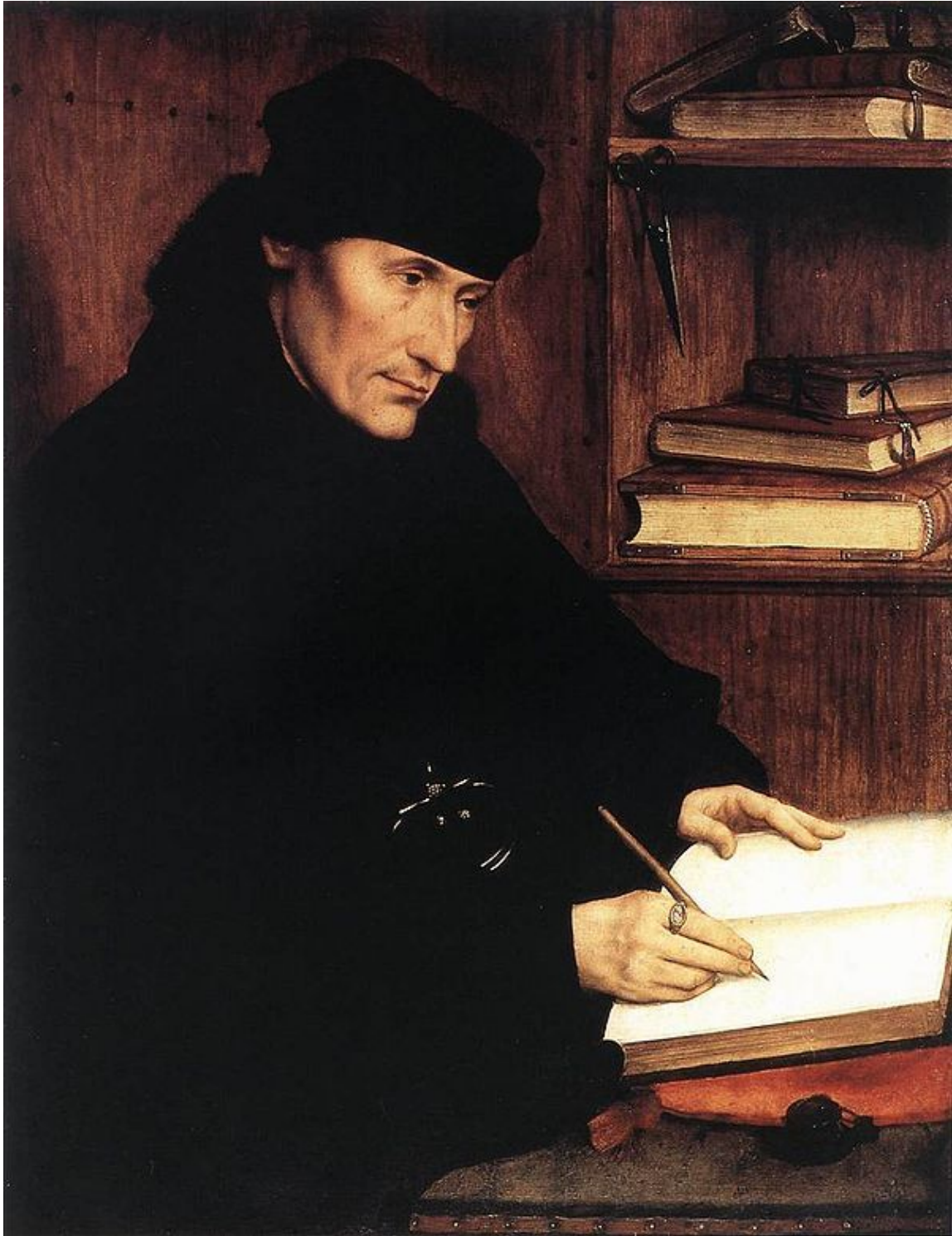
61.3.4 Sixteenth century

Walter J. Ong's article “Humanism” in the 1967 *New Catholic Encyclopedia* surveys **Renaissance humanism**, which defined itself broadly as disfavoring medieval scholastic logic and dialectic and as favoring instead the study of classical Latin style and grammar and philology and rhetoric. (Reprinted in Ong's *Faith and Contexts* (Scholars Press, 1999; 4: 69-91.))

One influential figure in the rebirth of interest in classical rhetoric was **Erasmus** (c.1466-1536). His 1512 work, *De Duplici Copia Verborum et Rerum* (also known as *Copia: Foundations of the Abundant Style*), was widely published (it went through more than 150 editions throughout Europe) and became one of the basic school texts on the subject. Its treatment of rhetoric is less comprehensive than the classic works of antiquity, but provides a traditional treatment of *res-verba* (matter and form): its first book treats the subject of **elocutio**, showing the student how to use **schemes and tropes**; the second book covers **inventio**. Much of the emphasis is on abundance of variation (*copia* means “plenty” or “abundance”, as in copious or cornucopia), so both books focus on ways to introduce the maximum amount of variety into discourse. For instance, in one section of the *De Copia*, Erasmus presents two hundred variations of the sentence “*Semper, dum vivam, tui meminero.*” Another of his works, the extremely popular **The Praise of Folly**, also had considerable influence on the teaching of rhetoric in the later 16th century. Its orations in favour of qualities such as madness spawned a type of exercise popular in Elizabethan grammar schools, later called **adoxography**, which required pupils to compose passages in praise of useless things.

Juan Luis Vives (1492–1540) also helped shape the study of rhetoric in England. A Spaniard, he was appointed in 1523 to the Lectureship of Rhetoric at Oxford by **Cardinal Wolsey**, and was entrusted by **Henry VIII** to be one of the tutors of Mary. Vives fell into disfavor when Henry VIII divorced **Catherine of Aragon** and left England in 1528. His best-known work was a book on education, *De Disciplinis*, published in 1531, and his writings on rhetoric included *Rhetoricae, sive De Ratione Dicendi, Libri Tres* (1533), *De Consultatione* (1533), and a rhetoric on letter writing, *De Conscribendis Epistolas* (1536). – It is likely that many well-known English writers would have been exposed to the works of **Erasmus** and **Vives** (as well as those of the Classical rhetoricians) in their schooling, which was conducted in Latin (not English) and often included some study of Greek and placed considerable emphasis on rhetoric. See, for example, T.W. Baldwin's *William Shakspeare's Small Latine and Lesse Greeke*, 2 vols. (University of Illinois Press, 1944).

The mid-16th century saw the rise of vernacular rhetorics—those written in English rather than in the Classical languages; adoption of works in English was slow, however, due to the strong orientation toward Latin and Greek. **Leonard Cox's The Art or Crafte of Rhetoryke** (c. 1524–1530; second edition published in 1532) is considered to be the earliest text on rhetorics in English; it was, for the most part, a translation of the work of **Philipp Melanchthon**.*[47] A successful early text was **Thomas Wilson's The Arte of Rhetorique** (1553), which presents a traditional treatment of rhetoric. For instance, Wilson presents the five canons of rhetoric (**Invention**, **Disposition**, **Elocutio**, **Memoria**,



Portrait of Erasmus of Rotterdam

and Utterance or Actio). Other notable works included Angel Day's *The English Secreterie* (1586, 1592), George Puttenham's *The Arte of English Poesie* (1589), and Richard Rainholde's *Foundacion of Rhetorike* (1563).

During this same period, a movement began that would change the organization of the school curriculum in Protestant and especially Puritan circles and led to rhetoric losing its central place. A French scholar, Pierre de la Ramée, in Latin *Petrus Ramus* (1515–1572), dissatisfied with what he saw as the overly broad and redundant organization of the *trivium*, proposed a new curriculum. In his scheme of things, the five components of rhetoric no longer lived under the common heading of rhetoric. Instead, invention and disposition were determined to fall exclusively under the heading

of dialectic, while style, delivery, and memory were all that remained for rhetoric. See **Walter J. Ong**, *Ramus, Method, and the Decay of Dialogue: From the Art of Discourse to the Art of Reason* (Harvard University Press, 1958; reissued by the University of Chicago Press, 2004, with a new foreword by Adrian Johns). Ramus, rightly accused of sodomy and erroneously of atheism, was martyred during the French Wars of Religion. His teachings, seen as inimical to Catholicism, were short-lived in France but found a fertile ground in the Netherlands, Germany and England.*[48]

One of Ramus' French followers, **Audomarus Talaeus** (Omer Talon) published his rhetoric, *Institutiones Oratoriae*, in 1544. This work provided a simple presentation of rhetoric that emphasized the treatment of style, and became so popular that it was mentioned in **John Brinsley's** (1612) *Ludus literarius; or The Grammar Schoole* as being the “most used in the best schooles.” Many other **Ramist** rhetorics followed in the next half-century, and by the 17th century, their approach became the primary method of teaching rhetoric in Protestant and especially Puritan circles. See **Walter J. Ong**, *Ramus and Talon Inventory* (Harvard University Press, 1958); **Joseph S. Freedman**, *Philosophy and the Art Europe, 1500–1700: Teaching and Texts at Schools and Universities* (Ashgate, 1999). **John Milton** (1608–1674) wrote a textbook in logic or dialectic in Latin based on Ramus' work, which has now been translated into English by **Walter J. Ong** and **Charles J. Ermatinger** in *The Complete Prose Works of John Milton* (Yale University Press, 1982; 8: 206–407), with a lengthy introduction by Ong (144–205). The introduction is reprinted in Ong's *Faith and Contexts* (Scholars Press, 1999; 4: 111–41).

Ramism could not exert any influence on the established Catholic schools and universities, which remained loyal to Scholasticism, or on the new Catholic schools and universities founded by members of the religious orders known as the **Society of Jesus** or the Oratorians, as can be seen in the **Jesuit** curriculum (in use right up to the 19th century, across the Christian world) known as the **Ratio Studiorum** (that **Claude Paur**, S.J., has recently translated into English, with the Latin text in the parallel column on each page (St. Louis: Institute of Jesuit Sources, 2005)). If the influence of Cicero and Quintilian permeates the **Ratio Studiorum**, it is through the lenses of devotion and the militancy of the Counter-Reformation. The *Ratio* was indeed imbued with a sense of the divine, of the incarnate logos, that is of rhetoric as an eloquent and humane means to reach further devotion and further action in the Christian city, which was absent from Ramist formalism. The *Ratio* is, in rhetoric, the answer to St Ignatius Loyola's practice, in devotion, of “spiritual exercises.” This complex oratorical-prayer system is absent from Ramism.

61.3.5 Seventeenth century

In New England and at **Harvard College** (founded 1636), Ramus and his followers dominated, as **Perry Miller** shows in *The New England Mind: The Seventeenth Century* (Harvard University Press, 1939). However, in England, several writers influenced the course of rhetoric during the 17th century, many of them carrying forward the dichotomy that had been set forth by Ramus and his followers during the preceding decades. Of greater importance is that this century saw the development of a modern, vernacular style that looked to English, rather than to Greek, Latin, or French models.

Francis Bacon (1561–1626), although not a rhetorician, contributed to the field in his writings. One of the concerns of the age was to find a suitable style for the discussion of scientific topics, which needed above all a clear exposition of facts and arguments, rather than the ornate style favored at the time. Bacon in his *The Advancement of Learning* criticized those who are preoccupied with style rather than “the weight of matter, worth of subject, soundness of argument, life of invention, or depth of judgment.” On matters of style, he proposed that the style conform to the subject matter and to the audience, that simple words be employed whenever possible, and that the style should be agreeable.*[49]

Thomas Hobbes (1588–1679) also wrote on rhetoric. Along with a shortened translation of **Aristotle's** *Rhetoric*, Hobbes also produced a number of other works on the subject. Sharply contrarian on many subjects, Hobbes, like Bacon, also promoted a simpler and more natural style that used figures of speech sparingly.

Perhaps the most influential development in English style came out of the work of the **Royal Society** (founded in 1660), which in 1664 set up a committee to improve the English language. Among the committee's members were **John Evelyn** (1620–1706), **Thomas Sprat** (1635–1713), and **John Dryden** (1631–1700). Sprat regarded “fine speaking” as a disease, and thought that a proper style should “reject all amplifications, digressions, and swellings of style” and instead “return back to a primitive purity and shortness” (*History of the Royal Society*, 1667).

While the work of this committee never went beyond planning, John Dryden is often credited with creating and exemplifying a new and modern English style. His central tenet was that the style should be proper “to the occasion, the subject, and the persons.” As such, he advocated the use of English words whenever possible instead of foreign ones, as well as vernacular, rather than Latinate, syntax. His own prose (and his poetry) became exemplars of this new style.

61.3.6 Eighteenth century

Arguably one of the most influential schools of rhetoric during this time was Scottish Belletristic rhetoric, exemplified by such professors of rhetoric as **Hugh Blair** whose *Lectures on Rhetoric and Belles Lettres* saw international success in various editions and translations.

61.4 Modern rhetoric

At the turn of the 20th century, there was a revival of rhetorical study manifested in the establishment of departments of rhetoric and speech at academic institutions, as well as the formation of national and international professional organizations. * [50] **Jim A. Kuypers** and Andrew King suggest that the early interest in rhetorical studies was a movement away from elocution as taught in departments of English in the United States, and was an attempt to refocus rhetorical studies away from delivery only to civic engagement. Collectively, they write, twentieth century rhetorical studies offered an understanding of rhetoric that demonstrated a “rich complexity” of how rhetorical scholars understood the nature of rhetoric. * [51] Theorists generally agree that by the 1930s a significant reason for the revival of the study of rhetoric was the renewed importance of language and persuasion in the increasingly mediated environment of the 20th century (see **Linguistic turn**) and through the 21st century, with the media focus on the wide variations and analyses of political rhetoric and its consequences. The rise of **advertising** and of **mass media** such as **photography**, **telegraphy**, **radio**, and **film** brought rhetoric more prominently into people's lives. More recently the term rhetoric has been applied to media forms other than verbal language, e.g. **Visual rhetoric**.

61.4.1 Notable modern theorists

- **Chaïm Perelman** was a philosopher of law, who studied, taught, and lived most of his life in Brussels. He was among the most important **argumentation** theorists of the 20th century. His chief work is the *Traité de l'argumentation - la nouvelle rhétorique* (1958), with **Lucie Olbrechts-Tyteca**, which was translated into English as *The New Rhetoric: A Treatise on Argumentation*, by John Wilkinson and Purcell Weaver (1969). Perelman and Olbrechts-Tyteca move rhetoric from the periphery to the center of argumentation theory. Among their most influential concepts are “dissociation,” “the universal audience,” “quasi-logical argument,” and “presence.”
- **Kenneth Burke** was a rhetorical theorist, philosopher, and poet. Many of his works are central to modern rhetorical theory: *A Rhetoric of Motives* (1950), *A Grammar of Motives* (1945), *Language as Symbolic Action* (1966), and *Counterstatement* (1931). Among his influential concepts are “identification,” “consubstantiality,” and the “dramatistic pentad.” He described rhetoric as “the use of language as a symbolic means of inducing cooperation in beings that by nature respond to symbols.” * [52] In relation to Aristotle's theory, Aristotle was more interested in constructing rhetoric, while Burke was interested in “debunking” it.
- **Edwin Black** was a rhetorical critic best known for his book *Rhetorical Criticism: A Study in Method* * [53] (1965) in which he criticized the dominant “neo-Aristotelian” tradition in American **rhetorical criticism** as having little in common with Aristotle “besides some recurrent topics of discussion and a vaguely derivative view of rhetorical discourse.” Furthermore, he contended, because rhetorical scholars had been focusing primarily on Aristotelian logical forms they often overlooked important, alternative types of discourse. He also published several highly influential essays including: “Secrecy and Disclosure as Rhetorical Forms.”, * [54] “The Second Persona,” * [55] and “A Note on Theory and Practice in Rhetorical Criticism.” * [56]
- **Marshall McLuhan** was a media theorist whose theories and whose choice of objects of study are important to the study of rhetoric. McLuhan's famous dictum “the medium is the message” highlights the significance of the medium itself. No other scholar of the history and theory of rhetoric was as widely publicized in the 20th century as McLuhan. * [57]
- **I. A. Richards** was a literary critic and rhetorician. His *The Philosophy of Rhetoric* is an important text in modern rhetorical theory. In this work, he defined rhetoric as “a study of misunderstandings and its remedies,” * [58] and introduced the influential concepts *tenor* and *vehicle* to describe the components of a metaphor—the main idea and the concept to which it is compared. * [59]
- **The Groupe µ**. This interdisciplinary team has contributed to the renovation of the elocutio in the context of poetics and modern linguistics, significantly with *Rhétorique générale* (1970; translated into English as *A*

General Rhetoric, by Paul B. Burrell et Edgar M. Slotkin, Johns Hopkins University Press, 1981) and *Rhétorique de la poésie* (1977).

- **Stephen Toulmin** was a philosopher whose models of argumentation have had great influence on modern rhetorical theory. His *Uses of Argument* is an important text in modern rhetorical theory and argumentation theory.*[60]
- **Richard Vatz** is a rhetorician responsible for the salience-agenda/meaning-spin conceptualization of rhetoric, later revised (2014) to an “agenda-spin” model, a conceptualization which emphasizes persuader responsibility for the agenda and spin he/she creates. His theory is notable for its agent-focused perspective, articulated in /The Only Authentic Book of Persuasion/ (Kendall Hunt), derived from the Summer, 1973 /Philosophy and Rhetoric/ article, “The Myth of the Rhetorical Situation.”
- **Richard M. Weaver** was a rhetorical and cultural critic well known for his contributions to the new conservatism. He focused on the ethical implications of rhetoric and his ideas can be seen in “Language is Sermonic” and “The Ethics of Rhetoric.” According to Weaver there are four types of argument, and through the argument a person habitually uses the critic can see the rhetorician's worldview. Those who prefer the argument from genus or definition are idealists. Those who argue from similitude see the connectedness between things and are used by poets and religious individuals. The argument from consequence sees a cause and effect relationship. Finally the argument from circumstance considers the particulars of a situation and is an argument preferred by liberals.

61.4.2 Methods of analysis

Criticism seen as a method

Rhetoric can be analyzed by a variety of methods and theories. One such method is criticism. When those using criticism analyze instances of rhetoric what they do is called rhetorical criticism (see section below). According to rhetorical critic **Jim A. Kuypers**, “The use of rhetoric is an art; as such, it does not lend itself well to scientific methods of analysis. Criticism is an art as well; as such, it is particularly well suited for examining rhetorical creations.”*[61] He asserts that criticism is a method of generating knowledge just as the scientific method is a method for generating knowledge: “The way the Sciences and the Humanities study the phenomena that surround us differ greatly in the amount of researcher personality allowed to influence the results of the study. For example, in the Sciences researchers purposefully adhere to a strict method (the scientific method). All scientific researchers are to use this same basic method, and successful experiments must be 100 percent replicable by others. The application of the scientific method may take numerous forms, but the overall method remains the same--and the personality of the researcher is excised from the actual study. In sharp contrast, criticism (one of many Humanistic methods of generating knowledge) actively involves the personality of the researcher. The very choices of what to study, and how and why to study a rhetorical artifact are heavily influenced by the personal qualities of the researcher. In criticism this is especially important since the personality of the critic considered an integral component of the study. Further personalizing criticism, we find that rhetorical critics use a variety of means when examining a particular rhetorical artifact, with some critics even developing their own unique perspective to better examine a rhetorical artifact.”*[62]

Edwin Black (rhetorician) wrote on this point that, “Methods, then, admit of varying degrees of personality. And criticism, on the whole, is near the indeterminate, contingent, personal end of the methodological scale. In consequence of this placement, it is neither possible nor desirable for criticism to be fixed into a system, for critical techniques to be objectified, for critics to be interchangeable for purposes of [scientific] replication, or for rhetorical criticism to serve as the handmaiden of quasi-scientific theory. [The] idea is that critical method is too personally expressive to be systematized.”*[63]

Jim A. Kuypers sums this idea of criticism as art in the following manner: “In short, criticism is an art, not a science. It is not a scientific method; it uses subjective methods of argument; it exists on its own, not in conjunction with other methods of generating knowledge (i.e., social scientific or scientific). [I]nsight and imagination top statistical applications when studying rhetorical action.”*[64]

Observation on analytic rhetorical method

There does not exist an analytic method that is widely recognized as “the” rhetorical method, partly because many in rhetorical study see rhetoric as merely produced by reality (see dissent from that view below). It is important to

note that the object of rhetorical analysis is typically discourse, and therefore the principles of “rhetorical analysis” would be difficult to distinguish from those of “discourse analysis.” However, rhetorical analytic methods can also be applied to almost anything, including objects—a car, a castle, a computer, a comportment.

Generally speaking, rhetorical analysis makes use of rhetorical concepts (ethos, logos, kairos, mediation, etc.) to describe the social or epistemological functions of the object of study. When the object of study happens to be some type of discourse (a speech, a poem, a joke, a newspaper article), the aim of rhetorical analysis is not simply to describe the claims and arguments advanced within the discourse, but (more important) to identify the specific semiotic strategies employed by the speaker to accomplish specific persuasive goals. Therefore, after a rhetorical analyst discovers a use of language that is particularly important in achieving persuasion, she typically moves onto the question of “How does it work?” That is, what effects does this particular use of rhetoric have on an audience, and how does that effect provide more clues as to the speaker's (or writer's) objectives?

There are some scholars who do partial rhetorical analysis and defer judgments about rhetorical success. In other words, some analysts attempt to avoid the question of “Was this use of rhetoric successful [in accomplishing the aims of the speaker]?” To others, however, that is the preeminent point: is the rhetoric strategically effective and what did the rhetoric accomplish? This question allows a shift in focus from the speaker's objectives to the effects and functions of the rhetoric itself.

61.4.3 Rhetorical strategies

Rhetorical strategies are the efforts made by authors to persuade or inform their readers. Rhetorical strategies are employed by writers and refer to the different ways they can persuade the reader. According to Gray, there are various argument strategies used in writing. He describes four of these as argument from analogy, argument from absurdity, thought experiments, and inference to the best explanation.*[65]

61.4.4 Rhetorical criticism

Modern *rhetorical criticism* explores the relationship between text and context; that is, how an instance of rhetoric relates to circumstances. In his *Rhetorical Criticism: A Study in Method*, scholar Edwin Black states, “It is the task of criticism not to measure ... discourses dogmatically against some parochial standard of rationality but, allowing for the immeasurable wide range of human experience, to see them as they really are.”*[66] While the language “as they really are” is debatable, rhetorical critics explain texts and speeches by investigating their *rhetorical situation*, typically placing them in a framework of speaker/audience exchange. The antithetical view places the rhetor at the center of creating that which is considered the extant situation; i.e., the agenda and spin.*[67]

Additional theoretical approaches

Following the *neo-Aristotelian* approaches to criticism, scholars began to derive methods from other disciplines, such as history, philosophy, and the social sciences.*[68] The importance of critics' personal judgment decreased in explicit coverage while the analytical dimension of criticism began to gain momentum. Throughout the 1960s and 1970s, methodological pluralism replaced the singular neo-Aristotelian method. Methodological rhetorical criticism is typically done by deduction, where a broad method is used to examine a specific case of rhetoric.*[69] These types include:

- **Ideological criticism** – critics engage rhetoric as it suggests the beliefs, values, assumptions, and interpretations held by the rhetor or the larger culture. Ideological criticism also treats ideology as an artifact of discourse, one that is embedded in key terms (called “ideographs”) as well as material resources and discursive embodiment.
- **Cluster criticism** – a method developed by Kenneth Burke that seeks to help the critic understand the rhetor's worldview. This means identifying terms that are ‘clustered’ around key symbols in the rhetorical artifact and the patterns in which they appear.
- **Frame analysis** – when used as rhetorical criticism, this theoretical perspective allows critics to look for how rhetors construct an interpretive lens in their discourse. In short, how they make certain facts more noticeable than others. It is particularly useful for analyzing products of the news media.

- **Generic criticism** – a method that assumes certain situations call for similar needs and expectations within the audience, therefore calling for certain types of rhetoric. It studies rhetoric in different times and locations, looking at similarities in the rhetorical situation and the rhetoric that responds to them. Examples include eulogies, inaugural addresses, and declarations of war.
- **Narrative criticism**—narratives help organize experiences in order to endow meaning to historical events and transformations. Narrative criticism focuses on the story itself and how the construction of the narrative directs the interpretation of the situation.

By the mid-1980s, however, the study of rhetorical criticism began to move away from precise methodology towards conceptual issues. Conceptually driven criticism^[70] operates more through abduction, according to scholar **James Jasinski**, who argues that this emerging type of criticism can be thought of as a back-and-forth between the text and the concepts, which are being explored at the same time. The concepts remain “works in progress,” and understanding those terms develops through the analysis of a text.^[71]

Criticism is considered rhetorical when it focuses on the way some types of discourse react to situational exigencies—problems or demands—and constraints. This means that modern rhetorical criticism is based in how the rhetorical case or object persuades, defines, or constructs the audience. In modern terms, what can be considered rhetoric includes, but it is not limited to, speeches, scientific discourse, pamphlets, literary work, works of art, and pictures. Contemporary rhetorical criticism has maintained aspects of early neo-Aristotelian thinking through close reading, which attempts to explore the organization and stylistic structure of a rhetorical object.^[72] Using close textual analysis means rhetorical critics use the tools of classical rhetoric and literary analysis to evaluate the style and strategy used to communicate the argument.

Purpose of rhetorical criticism

Rhetorical criticism serves several purposes or functions. First, rhetorical criticism hopes to help form or improve public taste. It helps educate audiences and develops them into better judges of rhetorical situations by reinforcing ideas of value, morality, and suitability. Rhetorical criticism can thus contribute to the audience's understanding of themselves and society.

According to **Jim A. Kuypers**, a dual purpose for performing criticism should be primarily to enhance our appreciation and understanding. ‘[W]e wish to enhance both our own and others’ understanding of the rhetorical act; we wish to share our insights with others, and to enhance their appreciation of the rhetorical act. These are not hollow goals, but quality of life issues. By improving understanding and appreciation, the critic can offer new and potentially exciting ways for others to see the world. Through understanding we also produce knowledge about human communication; in theory this should help us to better govern our interactions with others.’ Criticism is a humanizing activity in that it explores and highlights qualities that make us human.”^[73]

61.5 French rhetoric

Rhetoric was part of the curriculum in **Jesuit** and, to a lesser extent, Oratorian colleges until the **French Revolution**. For Jesuits, right from the foundation of the Society in France, rhetoric was an integral part of the training of young men toward taking up leadership positions in the Church and in State institutions, as **Marc Fumaroli** has shown it in his foundational *Âge de l'éloquence* (1980). The Oratorians, by contrast, reserved it a lesser place, in part due to the stress they placed on modern language acquisition and a more sensualist philosophy (like **Bernard Lamy's** *La Rhétorique ou l'Art de parler* (1675), which is an excellent example of their approach). Nonetheless, in the 18th Century, rhetoric was the structure and crown of secondary education, with works such as Rollin's *Treatise of Studies* achieving a wide and enduring fame across the Continent.^[74] Later, with **Nicolas Boileau** and **François de Malherbe**, rhetoric is the instrument of the clarity of the comment and speech; the literature that ensues from it is named “Sublime”. The main representative remains **Rivarol**.

The French Revolution, however, turned this around. Philosophers such as **Condorcet**, who drafted the French revolutionary chart for a people's education under the rule of reason, dismissed rhetoric as an instrument of oppression in the hands of clerics in particular. The Revolution went as far as to suppress the Bar, arguing that forensic rhetoric did disservice to a rational system of justice, by allowing fallacies and emotions to come into play. Nonetheless, as later historians of the 19th century were keen to explain, the Revolution was a high moment of eloquence and rhetorical prowess, although set against a background of rejecting rhetoric.

Under the First Empire and its wide-ranging educational reforms, imposed on or imitated across the Continent, rhetoric regained little ground. In fact, instructions to the newly founded Polytechnic School, tasked with training the scientific and technical elites, made it clear that written reporting was to supersede oral reporting. Rhetoric reentered secondary curriculum in fits and starts, but never regained the prominence it had enjoyed under the *ancien régime*, although the penultimate year of secondary education was known as the Class of Rhetoric. When manuals were redrafted in the mid-century, in particular after the 1848 Revolution to formulate a national curriculum, care was taken to distance their approach to rhetoric from that of the Church, which was seen as an agent of conservatism and reactionary politics.

By the end of the 1870s, a major change had taken place: philosophy of the rationalist or eclectic kind, generally Kantian, had taken over rhetoric as the true end stage of secondary education (the so-called Class of Philosophy bridged secondary and university education). Rhetoric was then relegated to the study of literary figures of speech, a discipline later on taught as Stylistics within the French literature curriculum. More decisively, in 1890, a new standard written exercise superseded the rhetorical exercises of speech writing, letter writing and narration. The new genre, called dissertation, had been invented in 1866, for the purpose of rational argument in the philosophy class. Typically, in a dissertation, a question is asked, such as: "Is history a sign of humanity's freedom?" The structure of a dissertation consists in an introduction that elucidates the basic definitions involved in the question as set, followed by an argument or thesis, a counter-argument or antithesis, and a resolving argument or synthesis that is not a compromise between the former but the production of a new argument, ending with a conclusion that does not sum up the points but opens onto a new problem. Hegelianism influenced the dissertation design. It remains today the standard of writing in French humanities.

By the beginning of the 20th century, rhetoric was fast losing the remains of its former importance, and eventually was taken out of the school curriculum altogether at the time of the Separation of State and Churches (1905). Part of the argument was that rhetoric remained the last element of irrationality, driven by religious arguments, in what was perceived as inimical to Republican education. The move, initiated in 1789, found its resolution in 1902 when rhetoric was expunged from all curricula. At the same time, Aristotelian rhetoric, owing to a revival of Thomistic philosophy initiated by Rome, regained ground in what was left of Catholic education in France, in particular at the prestigious Faculty of Theology of Paris, now a private entity. Yet, rhetoric vanished substantially from the French scene, educational or intellectual, for some 60 years..

In the early 1960s a change began to take place, as the word rhetoric and the body of knowledge it covers began to be used again, in a modest and almost secret manner. The new linguistic turn, through the rise of *semiotics* as well as of structural *linguistics*, brought to the fore a new interest in figures of speech as signs, the metaphor in particular (in the works of *Roman Jakobson*, *Groupe µ*, Michel Charles, Gérard Genette) while famed Structuralist *Roland Barthes*, a classicist by training, perceived how some basic elements of rhetoric could be of use in the study of narratives, fashion and ideology. Knowledge of rhetoric was so dim in the early 1970s that his short memoir on rhetoric was seen as highly innovative. Basic as it was, it did help rhetoric regain some currency in avant-garde circles. *Psychoanalyst Jacques Lacan*, his contemporary, makes references to rhetoric, in particular to the Pre-Socratics. Philosopher *Jacques Derrida* wrote on Voice.

At the same time, more profound work was taking place that eventually gave rise to the French school of rhetoric as it exists today.*[75]

This rhetorical revival took place on two fronts.*[76] First, in 17th-century French studies, the mainstay of French literary education, awareness grew that rhetoric was necessary to push the limits of knowledge further, and also to provide an antidote to *Structuralism* and its denial of historicism in culture. This was the pioneering work of Marc Fumaroli who, building on the work of classicist and Neo-Latinist Alain Michel and French scholars such as Roger Zuber, published his famed *Age de l'Eloquence* (1980), was one of the founders of the International Society for the History of Rhetoric and was eventually elevated to a chair in rhetoric at the prestigious College de France. He is the editor in chief of a monumental *History of Rhetoric in Modern Europe*.*[77] His disciples form the second generation,*[78] with rhetoricians such as Françoise Waquet and Delphine Denis, both of the Sorbonne, or *Philippe-Joseph Salazar* (fr:Philippe-Joseph Salazar on the French Wikipedia), until recently at Derrida's College international de philosophie, laureate of the *Harry Oppenheimer* prize and whose recent book on *Hyperpolitique* has attracted the French media's attention on a "re-appropriation of the means of production of persuasion".*[79]

Second, in the area of Classical studies, in the wake of Alain Michel, Latin scholars fostered a renewal in Cicero studies. They broke away from a pure literary reading of his orations, in an attempt to embed Cicero in European ethics. Meanwhile, among Greek scholars, the literary historian and philologist Jacques Bompaire, the philologist and philosopher E. Dupréel, and later the literature historian *Jacqueline de Romilly* pioneered new studies in the Sophists and the Second Sophistic. The second generation of Classicists, often trained in philosophy as well (following *Heidegger* and *Derrida*, mainly), built on their work, with authors such as *Marcel Detienne* (now at Johns Hopkins),

Nicole Loraux, Medievalist and logician [Alain De Libera](#) (Geneva), ^[80] Ciceronian scholar Carlos Lévy (Sorbonne, Paris) and [Barbara Cassin](#) (Collège international de philosophie, Paris). ^[81] Sociologist of science [Bruno Latour](#) and economist Romain Laufer may also be considered part of, or close to this group. Also French philosophers specialized in Arabic commentaries on Aristotle's *Rhetoric*. ^[82]

Links between the two strands—literary and philosophical—of the French school of rhetoric are strong and collaborative, and bear witness to the revival of rhetoric in France. ^[83] A recent issue of *Philosophy & Rhetoric* presents current writing in the field. ^[84]

61.6 See also

Miscellaneous terms

Political speech resources

- [List of political slogans](#)
- [List of speeches](#)

61.7 Notes

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- [3] "... rhetoric is a combination of the science of logic and of the ethical branch of politics ..." Aristotle. *Rhetoric*. (trans. W. Rhys Roberts). I:4:1359.; Aristotle, *Rhetoric* 1.2.1,
- [4] The definition of rhetoric is a controversial subject within the field and has given rise to philological battles over its meaning in Ancient Greece. See, for instance, Johnstone, Henry W. Jr. (1995). "On Schiappa versus Poulakos." *Rhetoric Review*. 14:2. (Spring), 438-440.
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Chapter 62

Rhetorical question



Protest in Germany against electoral fraud in Iran in 2009

A **Rhetorical Question** is a **figure of speech** in the form of a **question** that is asked in order to make a point rather than to elicit an answer.*[1] Though classically stated as a proper question, such a **rhetorical device** may be posed declaratively by implying a question, and therefore may not always require a question mark when written. Though a rhetorical question does not require a direct answer, in many cases it may be intended to start a discussion or at least draw an acknowledgement that the listener understands the intended message.

A common example is the question "Can't you do anything right?" This question, when posed, is intended not to ask about the listener's abilities, but rather to insinuate a lack of the listener's abilities.

Although sometimes amusing and even humorous, rhetorical questions are rarely meant for pure, comedic effect.

62.1 Different forms

62.1.1 Negative assertions

Often a rhetorical question is intended as a challenge, with the implication that the question is difficult or impossible to answer. Therefore, the question functions as a negative assertion. For example, *What have the Romans ever done for us?* (*Monty Python's Life of Brian*) is intended to mean *The Romans have never done anything for us*. Similarly, when Shakespeare lets Mark Antony exclaim: *Here was a Caesar! when comes such another?* (*Julius Caesar*, Act 3, scene 2, 257), it functions as an assertion that Caesar possessed rare qualities that may not be seen again for a long time, if ever.

Such negative assertions may function as positives in *sarcastic contexts*. For example, when a speaker repeats a statement reported to have been found true and adds a sarcastic *Who knew?*, the question functions as an assertion that the truth of the preceding statement was – or should have been – already utterly obvious: *Smoking can lead to lung cancer. Who knew?!*"

62.1.2 Rhetorical questions as metaphors

One common form is where a rhetorical question is used as a *metaphor* for a question already asked. There are more examples that may be found in the song *Maria* from the 1959 Rodgers and Hammerstein musical, *The Sound of Music*, in which the *How do you solve a problem like Maria?* is repeatedly answered with another question: *How do you catch a cloud and pin it down?*, *How do you keep a wave upon the sand?* and *How do you hold a moonbeam in your hand?* These responses may be taken as asserting that “the problem of Maria” cannot be solved; and furthermore the choice of *cloud*, *wave* and *moonbeam* as metaphors for Maria give insight into her character and the nature of the problem.

In the vernacular, this form of rhetorical question is most often seen as *rhetorical affirmation*, where the certainty or obviousness of the answer to a question is expressed by asking another, often humorous, question for which the answer is equally obvious; popular examples include *Does a bear shit in the woods?*, *Is the sky blue?* and *Is the Pope Catholic?**[2]*[3]*[4]

62.1.3 Other forms

Sometimes the implied answer to a rhetorical question is “Yes, but I wish it were not so” or *vice versa*:

*O mighty Caesar! dost thou lie so low?
Are all thy conquests, glories, triumphs, spoils,
Shrunk to this little measure?*

(Shakespeare, *Julius Caesar*, III.i.148)

Similarly in the Bob Dylan song *Blowin' in the Wind*, the rhetorical question is asked, “And how many deaths will it take till we know, that too many people have died?”

Another common form is the expression of doubt by questioning a statement just made; for example by appending the following to a sentence: *or did he?*, *or is it?*, etc.

The butler did it... or did he?

It is also common to use a rhetorical question to bring an end to a debate or to finalize a decision. For example, when internally deciding whether to perform an action, one may shove aside the dialogue with a simple, “Eh, why not?” or “What the heck?”

- Grammar • Depending on the context, a rhetorical question may be punctuated by a question mark (?), full stop (.), or exclamation mark (!),*[5] but some sources argue that it is required to use a question mark for any question, rhetorical or not.*[6]

Rhetorical questions may be signaled by marker phrases; questions that include “after all” , or “by any chance” may be intended as rhetorical. *[7]

Written lists of rhetorical questions within a sentence require question marks, but do not require quotation marks. “Would he? Could he? Should he? she asked.” *[8]

In the 1580s, English printer Henry Denham invented a "rhetorical question mark" for use at the end of a rhetorical question; however, it died out of use in the 17th century. It was the reverse of an ordinary question mark, so that instead of the main opening pointing back into the sentence, it opened away from it. *[9]

62.2 Quotes

“The effectiveness of rhetorical questions in argument comes from their dramatic quality. They suggest dialogue, especially when the speaker both asks and answers them himself, as if he were playing two parts on the stage. They are not always impassioned; they may be mildly ironical or merely argumentative; but they are always to some extent dramatic, and, if used to excess, they tend to give one’s style a theatrical air.” *[10]

“Rhetorical questioning is...a fairly conscious technique adopted by a speaker for deliberate ends, and it is used infrequently, proportional to the length of the dialogue, oration, or conversation.” *[11]

62.3 See also

- Aporia
- Hypothetical question
- Suggestive question
- Complex question
- Presupposition
- Double-barreled question
- Loaded question
- Implicature
- Performative contradiction
- Betteridge's law of headlines

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62.5 External links

- [What is a rhetorical question?](#)
- [Audio illustrations of the rhetorical question](#)
- [A short definition of the term](#)
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Chapter 63

Semantics

Semantics (from Ancient Greek: σημαντικός *sēmantikós*, “significant”) ^[1]^[2] is the study of meaning. It focuses on the relation between *signifiers*, like words, phrases, signs, and symbols, and what they stand for; their *denotation*. Linguistic semantics is the study of meaning that is used for understanding human expression through language. Other forms of semantics include the semantics of programming languages, formal logics, and *semiotics*. In *international scientific vocabulary* semantics is also called *semasiology*.

The word *semantics* itself denotes a range of ideas—from the popular to the highly technical. It is often used in ordinary language for denoting a problem of understanding that comes down to word selection or *connotation*. This problem of understanding has been the subject of many formal enquiries, over a long period of time, especially in the field of *formal semantics*. In *linguistics*, it is the study of the interpretation of signs or symbols used in *agents* or *communities* within particular circumstances and contexts. ^[3] Within this view, sounds, facial expressions, body language, and *proxemics* have semantic (meaningful) content, and each comprises several branches of study. In written language, things like paragraph structure and punctuation bear semantic content; other forms of language bear other semantic content. ^[3]

The formal study of semantics intersects with many other fields of inquiry, including *lexicology*, *syntax*, *pragmatics*, *etymology* and others. Independently, semantics is also a well-defined field in its own right, often with synthetic properties. ^[4] In the *philosophy of language*, semantics and *reference* are closely connected. Further related fields include *philology*, *communication*, and *semiotics*. The formal study of semantics can therefore be manifold and complex.

Semantics contrasts with *syntax*, the study of the combinatorics of units of a language (without reference to their meaning), and *pragmatics*, the study of the relationships between the symbols of a language, their meaning, and the users of the language. ^[5] Semantics as a field of study also has significant ties to various representational theories of meaning including truth theories of meaning, coherence theories of meaning, and correspondence theories of meaning. Each of these is related to the general philosophical study of reality and the representation of meaning.

63.1 Linguistics

In *linguistics*, **semantics** is the subfield that is devoted to the study of meaning, as inherent at the levels of words, phrases, sentences, and larger units of *discourse* (termed *texts*, or *narratives*). The study of semantics is also closely linked to the subjects of representation, reference and denotation. The basic study of semantics is oriented to the examination of the meaning of *signs*, and the study of relations between different linguistic units and *compounds*: *homonymy*, *synonymy*, *antonymy*, *hypernymy*, *hyponymy*, *meronymy*, *metonymy*, *holonymy*, *paronyms*. A key concern is how meaning attaches to larger chunks of text, possibly as a result of the composition from smaller units of meaning. Traditionally, semantics has included the study of *sense* and denotative *reference*, *truth conditions*, argument structure, *thematic roles*, *discourse analysis*, and the linkage of all of these to *syntax*.

63.2 Montague grammar

In the late 1960s, **Richard Montague** proposed a system for defining semantic entries in the lexicon in terms of the **lambda calculus**. In these terms, the syntactic **parse** of the sentence *John ate every bagel* would consist of a subject (*John*) and a predicate (*ate every bagel*); Montague demonstrated that the meaning of the sentence altogether could be decomposed into the meanings of its parts and in relatively few rules of combination. The logical predicate thus obtained would be elaborated further, e.g. using truth theory models, which ultimately relate meanings to a set of **Tarskian** universals, which may lie outside the logic. The notion of such meaning atoms or primitives is basic to the **language of thought** hypothesis from the 1970s.

Despite its elegance, **Montague grammar** was limited by the context-dependent variability in word sense, and led to several attempts at incorporating context, such as:

- **Situation semantics** (1980s): **truth-values** are incomplete, they get assigned based on context
- **Generative lexicon** (1990s): categories (types) are incomplete, and get assigned based on context

63.3 Dynamic turn in semantics

In **Chomskyan** linguistics there was no mechanism for the learning of semantic relations, and the **nativist** view considered all semantic notions as inborn. Thus, even novel concepts were proposed to have been dormant in some sense. This view was also thought unable to address many issues such as **metaphor** or associative meanings, and **semantic change**, where meanings within a linguistic community change over time, and **qualia** or subjective experience. Another issue not addressed by the nativist model was how perceptual cues are combined in thought, e.g. in **mental rotation**.^[6]

This view of semantics, as an innate finite meaning inherent in a **lexical unit** that can be composed to generate meanings for larger chunks of discourse, is now being fiercely debated in the emerging domain of **cognitive linguistics**.^[7] and also in the non-Fodorian camp in **philosophy of language**.^[8] The challenge is motivated by:

- factors internal to language, such as the problem of resolving **indexical** or **anaphora** (e.g. *this x*, *him*, *last week*). In these situations **context** serves as the input, but the interpreted utterance also modifies the context, so it is also the output. Thus, the interpretation is necessarily dynamic and the meaning of sentences is viewed as contexts changing potentials instead of **propositions**.
- factors external to language, i.e. language is not a set of labels stuck on things, but “a toolbox, the importance of whose elements lie in the way they function rather than their attachments to things.”^[8] This view reflects the position of the later **Wittgenstein** and his famous *game* example, and is related to the positions of **Quine**, **Davidson**, and others.

A concrete example of the latter phenomenon is semantic **underspecification** – meanings are not complete without some elements of context. To take an example of one word, *red*, its meaning in a phrase such as *red book* is similar to many other usages, and can be viewed as compositional.^[9] However, the colours implied in phrases such as *red wine* (very dark), and *red hair* (coppery), or *red soil*, or *red skin* are very different. Indeed, these colours by themselves would not be called *red* by native speakers. These instances are contrastive, so *red wine* is so called only in comparison with the other kind of wine (which also is not *white* for the same reasons). This view goes back to **de Saussure**:

Each of a set of synonyms like *redouter* ('to dread'), *craindre* ('to fear'), *avoir peur* ('to be afraid') has its particular value only because they stand in contrast with one another. No word has a value that can be identified independently of what else is in its vicinity.^[10]

and may go back to earlier **Indian** views on language, especially the **Nyaya** view of words as indicators and not carriers of meaning.^[11]

An attempt to defend a system based on propositional meaning for semantic underspecification can be found in the **generative lexicon** model of **James Pustejovsky**, who extends contextual operations (based on type shifting) into the lexicon. Thus meanings are generated “on the fly” (as you go), based on finite context.

63.4 Prototype theory

Another set of concepts related to fuzziness in semantics is based on **prototypes**. The work of **Eleanor Rosch** in the 1970s led to a view that natural categories are not characterizable in terms of necessary and sufficient conditions, but are graded (fuzzy at their boundaries) and inconsistent as to the status of their constituent members. One may compare it with **Jung's archetype**, though the concept of **archetype** sticks to static concept. Some **post-structuralists** are against the fixed or static meaning of the **words**. **Derrida**, following **Nietzsche**, talked about slippages in fixed meanings.

Systems of categories are not objectively *out there* in the world but are rooted in people's experience. These categories evolve as **learned** concepts of the world – meaning is not an objective truth, but a subjective construct, learned from experience, and language arises out of the “grounding of our conceptual systems in shared **embodiment** and bodily experience” .*[12] A corollary of this is that the conceptual categories (i.e. the lexicon) will not be identical for different cultures, or indeed, for every individual in the same culture. This leads to another debate (see the **Sapir–Whorf hypothesis** or **Eskimo words for snow**).

63.5 Theories in semantics

63.5.1 Model theoretic semantics

Main article: **formal semantics (linguistics)**

Originates from Montague's work (see above). A highly formalized theory of natural language semantics in which expressions are assigned denotations (meanings) such as individuals, truth values, or functions from one of these to another. The truth of a sentence, and more interestingly, its logical relation to other sentences, is then evaluated relative to a model.

63.5.2 Formal (or truth-conditional) semantics

Main article: **truth-conditional semantics**

Pioneered by the philosopher **Donald Davidson**, another formalized theory, which aims to associate each natural language sentence with a meta-language description of the conditions under which it is true, for example: 'Snow is white' is true if and only if snow is white. The challenge is to arrive at the truth conditions for any sentences from fixed meanings assigned to the individual words and fixed rules for how to combine them. In practice, truth-conditional semantics is similar to model-theoretic semantics; conceptually, however, they differ in that truth-conditional semantics seeks to connect language with statements about the real world (in the form of meta-language statements), rather than with abstract models.

63.5.3 Lexical and conceptual semantics

Main article: **conceptual semantics**

This theory is an effort to explain properties of argument structure. The assumption behind this theory is that syntactic properties of phrases reflect the meanings of the words that head them.*[13] With this theory, linguists can better deal with the fact that subtle differences in word meaning correlate with other differences in the syntactic structure that the word appears in.*[13] The way this is gone about is by looking at the internal structure of words.*[14] These small parts that make up the internal structure of words are termed *semantic primitives*.*[14]

63.5.4 Lexical semantics

Main article: **lexical semantics**

A linguistic theory that investigates word meaning. This theory understands that the meaning of a word is fully reflected by its context. Here, the meaning of a word is constituted by its contextual relations.*[15] Therefore, a distinction between degrees of participation as well as modes of participation are made.*[15] In order to accomplish this distinction any part of a sentence that bears a meaning and combines with the meanings of other constituents is labeled as a semantic constituent. Semantic constituents that cannot be broken down into more elementary constituents are labeled minimal semantic constituents.*[15]

63.5.5 Computational semantics

Main article: [computational semantics](#)

Computational semantics is focused on the processing of linguistic meaning. In order to do this concrete algorithms and architectures are described. Within this framework the algorithms and architectures are also analyzed in terms of decidability, time/space complexity, data structures they require and communication protocols.*[16]

63.6 Computer science

Main article: [semantics \(computer science\)](#)

In **computer science**, the term *semantics* refers to the meaning of languages, as opposed to their form (*syntax*). According to Euzenat, semantics “provides the rules for interpreting the syntax which do not provide the meaning directly but constrains the possible interpretations of what is declared.”*[17] In other words, semantics is about interpretation of an expression. Additionally, the term is applied to certain types of data structures specifically designed and used for representing information content.

63.6.1 Programming languages

The semantics of **programming languages** and other languages is an important issue and area of study in computer science. Like the **syntax** of a language, its semantics can be defined exactly.

For instance, the following statements use different syntaxes, but cause the same instructions to be executed:

Generally these operations would all perform an arithmetical addition of 'y' to 'x' and store the result in a variable called 'x'.

Various ways have been developed to describe the **semantics of programming languages formally**, building on **mathematical logic**.*[18]

- **Operational semantics**: The meaning of a construct is specified by the computation it induces when it is executed on a machine. In particular, it is of interest *how* the effect of a computation is produced.
- **Denotational semantics**: Meanings are modelled by mathematical objects that represent the effect of executing the constructs. Thus *only* the effect is of interest, not how it is obtained.
- **Axiomatic semantics**: Specific properties of the effect of executing the constructs are expressed as *assertions*. Thus there may be aspects of the executions that are ignored.

63.6.2 Semantic models

Terms such as *semantic network* and *semantic data model* are used to describe particular types of data models characterized by the use of **directed graphs** in which the vertices denote concepts or entities in the world, and the arcs denote relationships between them.

The **Semantic Web** refers to the extension of the **World Wide Web** via embedding added semantic metadata, using semantic data modelling techniques such as **Resource Description Framework (RDF)** and **Web Ontology Language (OWL)**.

63.7 Psychology

In *psychology*, *semantic memory* is memory for meaning – in other words, the aspect of memory that preserves only the *gist*, the general significance, of remembered experience – while *episodic memory* is memory for the ephemeral details – the individual features, or the unique particulars of experience. The term 'episodic memory' was introduced by Tulving and Schacter in the context of 'declarative memory' which involved simple association of factual or objective information concerning its object. Word meaning is measured by the company they keep, i.e. the relationships among words themselves in a *semantic network*. The memories may be transferred intergenerationally or isolated in one generation due to a cultural disruption. Different generations may have different experiences at similar points in their own time-lines. This may then create a vertically heterogeneous semantic net for certain words in an otherwise homogeneous culture.*[19] In a network created by people analyzing their understanding of the word (such as *Wordnet*) the links and decomposition structures of the network are few in number and kind, and include *part of*, *kind of*, and similar links. In automated *ontologies* the links are computed vectors without explicit meaning. Various automated technologies are being developed to compute the meaning of words: *latent semantic indexing* and *support vector machines* as well as *natural language processing*, *neural networks* and *predicate calculus* techniques.

Ideasthesia is a psychological phenomenon in which activation of concepts evokes sensory experiences. For example, in *synesthesia*, activation of a concept of a letter (e.g., that of the letter *A*) evokes sensory-like experiences (e.g., of red color).

63.8 See also

63.8.1 Linguistics and semiotics

- Asemic writing
- Cognitive semantics
- Colorless green ideas sleep furiously
- Computational semantics
- Discourse representation theory
- General semantics
- Generative semantics
- Hermeneutics
- Natural semantic metalanguage
- Onomasiology
- Phono-semantic matching
- Pragmatic maxim
- Pragmaticism
- Pragmatism
- Problem of universals
- Semantic change or progression
- Semantic class
- Semantic feature
- Semantic field
- Semantic lexicon

- Semantic primes
- Semantic property
- Sememe
- Semiosis
- Semiotics
- SPL notation

63.8.2 Logic and mathematics

- Formal logic
- Game semantics
- Model theory
- Gödel's incompleteness theorems
- Proof-theoretic semantics
- Semantic consequence
- Semantic theory of truth
- Semantics of logic
- Truth-value semantics

63.8.3 Computer science

- Formal semantics of programming languages
- Knowledge representation
- Semantic networks
- Semantic transversal
- Semantic analysis
- Semantic compression
- Semantic HTML
- Semantic integration
- Semantic interpretation
- Semantic link
- Semantic reasoner
- Semantic service oriented architecture
- Semantic spectrum
- Semantic unification
- Semantic Web

63.8.4 Psychology

- Ideasthesia

63.9 References

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63.10 External links

- semanticsarchive.net
- Teaching page for A-level semantics
- Chomsky, Noam; *On Referring*, Harvard University, 30 October 2007 (video)
- Jackendoff, Ray; *Conceptual Semantics*, Harvard University, 13 November 2007 (video)
- *Semantics: an interview with Jerry Fodor* (ReVEL, vol. 5, no. 8 (2007))

Chapter 64

Sophistical Refutations

Sophistical Refutations (Greek: Σοφιστικοὶ Ἐλεγχοί; Latin: *De Sophisticis Elenchis*) is a text in Aristotle's *Organon* in which he identified thirteen fallacies.* [note 1] At the end of the text he also claims to be the first thinker to treat the subject of deduction. (*Soph. Ref.*, 34, 183b34 ff.). The fallacies Aristotle identifies are the following:

Fallacies in the language

1. Equivocation
2. Amphibology
3. Composition
4. Division
5. Accent
6. Figure of speech or form of expression

Fallacies not in the language

1. Accident
2. *Secundum quid*
3. Irrelevant conclusion
4. Begging the question
5. False cause
6. Affirming the consequent
7. Fallacy of many questions

64.1 Footnotes

[1] Sometimes listed as twelve.

64.2 References

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64.3 External links

- [Works related to Sophistical Refutations at Wikisource](#)
- [HTML Greek text via Greco interattivo](#)
- [Translated by W. A. Pickard-Cambridge](#)
- [Free LibriVox audiobook version of Sophistical Refutations \(Translated by W. A. Pickard-Cambridge\)](#)
- [ChangingMinds.org: “Aristotle's 13 fallacies”](#)

Chapter 65

Spin (public relations)

“Spin doctor” redirects here. For the rock band, see [Spin Doctors](#).

In **public relations**, **spin** is a form of **propaganda**, achieved through providing an interpretation of an event or campaign to persuade public opinion in favor or against some organization or public figure. While traditional public relations may also rely on creative presentation of the facts, “spin” often implies **disingenuous**, **deceptive** and/or highly **manipulative** tactics.* [1]

Politicians are often accused by their opponents of claiming to be honest and seek the truth while using spin tactics to manipulate public opinion. Because of the frequent association between spin and **press conferences** (especially **government** press conferences), the room in which these take place is sometimes described as a **spin room**. A group of people who develop spin may be referred to as “**spin doctors**” who engage in “spin doctoring” for the person or group that hired them.* [2]

65.1 History

Edward Bernays has been called the “Father of Spin” . As **Larry Tye** describes in his book *The Father of Spin: Edward L. Bernays and The Birth of Public Relations*, Bernays was able to help **tobacco** and **alcohol** companies use techniques to make certain behaviors more socially acceptable in the 20th-century United States. Tye claims that Bernays was proud of his work as a propagandist.* [3]

As information technology has increased dramatically since the end of the 20th century, commentators like **Joe Trippi** have advanced the theory that modern internet activism spells the end for political spin. By providing immediate counterpoint to every point a “spin doctor” can come up with, this theory suggests, the omnipresence of the internet in some societies will inevitably lead to a reduction in the effectiveness of spin.* [4]

65.2 Techniques

The techniques of spin include:

- Selectively presenting facts and quotes that support one's position (**cherry picking**). For example, a pharmaceutical company could pick and choose trials where their product shows a positive effect, ignoring the unsuccessful trials.
- **Non-denial denial**
- **Non-apology apology**
- **Mistakes were made** is an expression that is commonly used as a rhetorical device, whereby a speaker acknowledges that a situation was managed by using low-quality or inappropriate handling but seeks to evade any direct admission or accusation of responsibility by not specifying the person who made the mistakes. The acknowledgement of “mistakes” is framed in an abstract sense, with no direct reference to who made the

mistakes. A less evasive construction might be along the lines of “I made mistakes” or “John Doe made mistakes.” The speaker neither accepts personal responsibility nor accuses anyone else. The word “mistakes” also does not imply intent.

- Phrasing in a way that assumes unproven truths, or avoiding the question* [5]
- “Burying bad news”: announcing unpopular things at a time when it is believed that the media will focus on other news. Sometimes that other news is supplied by deliberately announcing popular items at the same time.
- Misdirection and diversion* [6]

For years businesses have used fake or misleading customer testimonials by editing/spinning customers to reflect a much more satisfied experience than was actually the case. In 2009 the Federal Trade Commission updated their laws to include measures to prohibit this type of “spinning” and have been enforcing these laws as of late. Additionally, over the past 5 to 6 years several companies have arisen that verify the authenticity of the testimonials businesses present on the marketing materials in an effort to convince one to become a customer.

Another spin technique involves a delay in the release of bad news so it can be hidden in the shadow of more important or favorable news or events. A government department could release a controversial report on the same day as a major sports event.

65.3 Fictional spin doctors

- Malcolm Tucker – Number 10 Director of Communications and Strategy in the BBC comedy *The Thick of It* and the film *In the Loop*. Portrayed by Peter Capaldi.
- Nick Naylor – Protagonist of Christopher Buckley's bestseller *Thank You for Smoking*.
- Deputy Mayor Mike Flaherty in the American sitcom *Spin City*.
- Conrad Brean – hired to save a presidential election in *Wag the Dog*.* [6]
- Charles Prentiss and Martin McCabe in the BBC comedy *Absolute Power*.
- In the game *Toontown Online*, one of the Lawbot Cogs has been named a Spin Doctor.
- Dick Harper – Protagonist in the film *Fun With Dick and Jane*.
- Jeremy Slank in *Fat*
- Kasper Juul in *Borgen*
- Major William Cage in *Edge of Tomorrow*
- Olivia Pope in *Scandal*
- Squealer in *Animal Farm*
- The Courtier in *The Courtier's Reply*
- Russ Duritz in *The Kid*
- Tim Wattley in *The Campaign*
- Tony in *The Hollowmen*

65.4 See also

- Apophasis
- Astroturfing
- Charm offensive
- Cognitive distortion
- Corporate propaganda
- Doublespeak
- Exaggeration
- Gaslighting
- Impression management
- Image restoration theory
- Media manipulation
- Minimisation (psychology)
- Reputation management
- Sexed up
- Sound bite
- *Spin* (1995 film)
- SpinSpotter
- Weasel words

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65.7 External links

- Christian Science Monitor: The spin room – oily engine of the political meat grinder
- Outfoxed: **OUTFOXED: Rupert Murdoch's War on Journalism**
- **Spinwatch** monitors spin and propaganda
- SPIN (documentary):
- *Booknotes* interview with Bill Press on *Spin This! All The Ways We Don't Tell the Truth*, January 6, 2002.

Chapter 66

Suggestive question

A **suggestive question** is one that implies that a certain answer should be given in response, * [1] * [2] or falsely presents a presupposition in the question as accepted fact. * [3] * [4] Such a question distorts the memory thereby tricking the person into answering in a specific way that might or might not be true or consistent with their actual feelings, and can be deliberate or unintentional. For example, the phrasing “Don't you think this was wrong?” is more suggestive than “Do you think this was wrong?” despite the difference of only one word. The former may subtly pressure the respondent into responding “yes,” whereas the latter is far more direct. * [1] Repeated questions can make people think their first answer is wrong and lead them to change their answer, or it can cause people to continuously answer until the interrogator gets the exact response that they desire. The **diction** used by the interviewer can also be an influencing factor to the response given by the interrogated individual.

Experimental research by psychologist **Elizabeth Loftus** has established that trying to answer such questions can create **confabulation** in eyewitnesses. * [4] For example, participants in an experiment may all view the same video clip of a car crash. Participants are assigned at random in one of two groups. The participants in the first group are asked “How fast was the car moving when it passed by the stop sign?” The participants in the other group are asked a similar question that does not refer to a stop sign. Later, the participants from the first group are more likely to remember seeing a stop sign in the video clip, even though there was in fact no such sign. * [3] Such findings have been replicated and raise serious questions about the validity of information elicited through poorly phrased questions during **eyewitness testimony**.

66.1 Types

66.1.1 Direct questions

Direct questions lead to one word answers when explanations are sometimes needed. This could include questions like “Do you get it?” and “Where did it happen?” According to Dr. Kathy Kellermann, an expert in persuasion and communication, direct questions force exact responses through carefully worded questions. * [5]

66.1.2 Repeated questions

Repeated questions elicit certain types of answers. Repeated questions make people think their first answer was wrong, lead them to change their answer, or cause people to keep answering until the interrogator gets the exact response that they desire. **Elizabeth Loftus** states that errors in answers are dramatically reduced if a question is only asked once * [6]

66.1.3 Forced choice questions

Yes/no or forced choice questions like “is this yellow or green?” force people to choose between two choices when the answer could be neither of the choices or needs more explanation. This generates more “interviewer-talks” moments, where the interviewer is talking and controlling most of the interview. * [7] This type of question is also

known as a **false dilemma**.

66.1.4 Presumptuous questions

Presumptuous questions can either be balanced or unbalanced. Unbalanced questions ask questions only from the point of view of one side of an argument. For example, an interrogator might ask “Do you favor the death penalty for persons convicted of murder?” This question assumes that the person’s only point of view in the situation is that a person who is convicted must either get the death penalty or not. The second type of presumptuous question is balanced question. This is when the interrogator uses opposite questions to make the witness believe that the question is balanced when the reality is that it is not. For example, the interrogator would ask, “Do you favor life in prison, without the possibility of parole?” This type of question may seem balanced when in reality it is still influencing the person to discuss life in prison and no other choice.*[6]

66.1.5 Confirmatory questions

Confirmatory questioning leads to answers that can only support a certain point. Here, the interviewer forces the person to make sure his or her answers make them out to be extroverted or introverted. If they want them to look extroverted they would ask questions like “How do you make a party more fun?” and “When are you talkative?” If they want the person to look introverted they ask questions like “Have you ever been left out of a group?” or “Can you be more hyper sometimes?”.*[5]

66.2 Research

Considerable attention has been devoted to suggestive questions and its effects. Experimental research by **Elizabeth F. Loftus**, an American psychologist and an expert on human memory, has established that trying to answer such questions can create confabulation in eyewitnesses.*[8] Loftus conducted an experiment where participants all viewed the same video clip of a car crash. Participants were then assigned at random in one of two groups. Group one was asked, “How fast was the car moving when it passed by the stop sign?” The participants in the other group are asked a similar question that does not refer to a stop sign. The results showed participants from the first group are more likely to remember seeing a stop sign in the video clip, even though there was in fact no such sign.*[9] Elizabeth Loftus stated that everyone is affected by suggestive questioning, and it comes from environmental factors instead of innate factors, meaning that everyone is affected by suggestive questioning.

William S. Cassel, a professor at the university of New Orleans conducted an experiment that was performed on Kindergarten, Grade 2, Grade 4, and adult subjects. They were required to view a brief video of two children arguing about the use of a bicycle. One week later subjects were asked for their free recall of the events in the video. It was then followed by sets of hierarchically arranged, increasingly suggestive questions that suggested a correct (positive-leading), an incorrect (misleading), or no specific (unbiased-leading) answer. The final level of questioning for each item was a three-alternative multiple-choice question. Correct free recall varied with age, with the kindergarten and Grade 2 children generally following the lead of the first-level questions more so than the older subjects. Older children were as accurate as adults in responding to questions about the central items, but not so for non-central items. Developmental differences were found in responses to repeated suggestive questioning, with kindergarten children following misleading questions and changing answers more often than older subjects. On the final multiple-choice questions, kindergarten children were able to provide the correct answer as often as they had to the initial questions, despite intervening errors. Findings are discussed in terms of the type of questions presented, the repetition factors, and the opportunities for subjects changing their answers in response to subsequent questions about the same item.*[10]

Elizabeth Loftus and **John Palmer** developed the **Misinformation Effect**. It describes participants witnessing an accident whose responses changed if questions were worded differently. They found out that people tend to exaggerate what they really saw.*[11] Twenty five percent of the participants claimed they saw broken glass because the word “smashed” instead of “hit” was used.*[11]

66.3 Professionals at risk for using suggestive questions

66.3.1 Interrogators and police

Unethical or unskilled police officers can use suggestive questioning in interrogation rooms. Such interrogators use different kinds of techniques and questions in order to get people to confess. They use **response framing** when getting people to falsely confess. This is when they purposely limit certain answers and suggest others. For example, they would ask someone if they were at the house at 1, 2, or 3 o' clock, forcing them to think it had to have been one of those choices. It causes people to recall things from the prompt instead of their memories.*[5] Also, interrogators use **stereotype induction**, which is when they tell the witness only negative characteristics of the alleged perpetrator. Part of stereotype induction is the incriminating condition where everything the witness says is labeled as *bad*. The detective would slightly shake his head or tell the witness to try again. This contrasts with another interrogating option of using a **neutral interview** technique, which includes both the bad and good aspects of the perpetrator.*[6]

The more time interrogators take to ask witnesses about an incident, the more the memory of the event would fade and people would forget what really happened. Then, after the memory is retrieved, some aspects are reconstructed which causes error. Not even confidence in what witnesses think they saw can be correlated with accurate memory. According to the psychologist **Philip Zimbardo**, "Misinformed individuals can come to believe the misinformation in which they feel confidence"*[12]

66.3.2 Therapists

Some therapists are at risk of using suggestive questions on clients while discussing the matter of past traumatic events. **Sigmund Freud**'s definition of repressed memory is "the mind's conscious and unconscious avoidance of unpleasant wishes, thoughts, and memories."*[13] However, there has been very little evidence of this type of memory. Some therapists claim that repression causes people to forget frightful events of sexual or physical abuse as a psychological defense*[13] Through improperly phrased interviewing questions, a therapist can convince their client to agree that there is such a thing as repressed memory, and therefore abuse had to have occurred, but the patient just does not remember it. Repetitive questions change clients' answers from a reluctant "perhaps" to a definite "for sure." The use of suggestive questioning by therapists changes perceptions and can cause entire memories to be created.*[13]

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66.5 See also

- Leading question
- Loaded question
- Push polling
- Framing

Chapter 67

Synthetic personalisation

This article is about how individuals are synthetically created within mass audiences. For how media construct personalities for themselves, see [synthetic personality](#).

Synthetic personalisation is the process of addressing mass audiences as though they were individuals through inclusive language usage. It developed from [critical discourse analysis](#) (CDA), a branch of [sociolinguistics](#) concentrating upon how power is articulated.

[Norman Fairclough](#), credited with developing the concept, calls it “a compensatory tendency to give the impression of treating each of the people 'handled' *en masse* as an individual. Examples would be air travel (*have a nice day*), [and] restaurants (*welcome to Wimpy!*)” (2001: 52).

The use of second person [pronouns](#) contributes significantly to the process of synthetic personalisation within the [mass media](#). It is extremely common to encounter constructions such as “See you after the break” on television shows prior to [commercial breaks](#). (This example is also common in Paddy Scannell's concept of Broadcast Sociability.)

[Mary Talbot](#) ([1995]/2003) used the concept in her work on a *synthetic sisterhood* in teenage girls' [magazines](#), analysing the linguistic devices (*pronouns*, *presuppositions*) constructing a simulated friendship between reader and producer. Using a variety of [sociolinguistic](#) concepts, including [positive politeness](#), she comments upon the [ideological](#) implications, such as [patriarchy](#).

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Chapter 68

Tautology (logic)

In logic, a **tautology** (from the Greek word ταυτολογία) is a formula that is true in every possible interpretation.

Philosopher Ludwig Wittgenstein first applied the term to redundancies of propositional logic in 1921. (It had been used earlier to refer to rhetorical tautologies, and continues to be used in that alternate sense.) A formula is **satisfiable** if it is true under at least one interpretation, and thus a tautology is a formula whose negation is unsatisfiable. Unsatisfiable statements, both through negation and affirmation, are known formally as **contradictions**. A formula that is neither a tautology nor a contradiction is said to be **logically contingent**. Such a formula can be made either true or false based on the values assigned to its propositional variables. The **double turnstile** notation $\models S$ is used to indicate that S is a tautology. Tautology is sometimes symbolized by " $\forall pq$ ", and contradiction by " $\exists pq$ ". The **tee** symbol $\top$ is sometimes used to denote an arbitrary tautology, with the dual symbol $\perp$ (**falsum**) representing an arbitrary contradiction; in any symbolism, a tautology may be substituted for the truth value "true," as symbolized, for instance, by "1."

Tautologies are a key concept in **propositional logic**, where a tautology is defined as a propositional formula that is true under any possible Boolean valuation of its **propositional variables**. A key property of tautologies in propositional logic is that an **effective method** exists for testing whether a given formula is always satisfied (or, equivalently, whether its negation is unsatisfiable).

The definition of *tautology* can be extended to sentences in **predicate logic**, which may contain **quantifiers**, unlike sentences of propositional logic. In propositional logic, there is no distinction between a tautology and a **logically valid** formula. In the context of **predicate logic**, many authors define a tautology to be a sentence that can be obtained by taking a tautology of propositional logic and uniformly replacing each propositional variable by a first-order formula (one formula per propositional variable). The set of such formulas is a **proper subset** of the set of logically valid sentences of predicate logic (which are the sentences that are true in every model).

68.1 History

The word *tautology* was used by the ancient Greeks to describe a statement that was true merely by virtue of saying the same thing twice, a pejorative meaning that is still used for **rhetorical tautologies**. Between 1800 and 1940, the word gained new meaning in logic, and is currently used in **mathematical logic** to denote a certain type of propositional formula, without the pejorative connotations it originally possessed.

In 1800, Immanuel Kant wrote in his book *Logic*:

"The identity of concepts in analytical judgments can be either *explicit (explicita)* or *non-explicit (implicita)*. In the former case analytic propositions are *tautological*."

Here *analytic proposition* refers to an **analytic truth**, a statement in natural language that is true solely because of the terms involved.

In 1884, Gottlob Frege proposed in his *Grundlagen* that a truth is analytic exactly if it can be derived using logic. But he maintained a distinction between analytic truths (those true based only on the meanings of their terms) and tautologies (statements devoid of content).

In 1921, in his *Tractatus Logico-Philosophicus*, Ludwig Wittgenstein proposed that statements that can be deduced by logical deduction are tautological (empty of meaning) as well as being analytic truths. Henri Poincaré had made similar remarks in *Science and Hypothesis* in 1905. Although Bertrand Russell at first argued against these remarks by Wittgenstein and Poincaré, claiming that mathematical truths were not only non-tautologous but were synthetic, he later spoke in favor of them in 1918:

“Everything that is a proposition of logic has got to be in some sense or the other like a tautology. It has got to be something that has some peculiar quality, which I do not know how to define, that belongs to logical propositions but not to others.”

Here *logical proposition* refers to a proposition that is provable using the laws of logic.

During the 1930s, the formalization of the semantics of propositional logic in terms of truth assignments was developed. The term *tautology* began to be applied to those propositional formulas that are true regardless of the truth or falsity of their propositional variables. Some early books on logic (such as *Symbolic Logic* by C. I. Lewis and Langford, 1932) used the term for any proposition (in any formal logic) that is universally valid. It is common in presentations after this (such as Stephen Kleene 1967 and Herbert Enderton 2002) to use *tautology* to refer to a logically valid propositional formula, but to maintain a distinction between *tautology* and *logically valid* in the context of first-order logic (see below).

68.2 Background

Main article: [propositional logic](#)

Propositional logic begins with **propositional variables**, atomic units that represent concrete propositions. A **formula** consists of propositional variables connected by logical connectives in a meaningful way, so that the truth of the overall formula can be uniquely deduced from the truth or falsity of each variable. A **valuation** is a function that assigns each propositional variable either T (for truth) or F (for falsity). So, for example, using the propositional variables A and B , the binary connectives $\vee$ and $\wedge$ representing **disjunction** and **conjunction** respectively, and the unary connective $\neg$ representing **negation**, the following formula can be obtained: $(A \wedge B) \vee (\neg A) \vee (\neg B)$. A valuation here must assign to each of A and B either T or F. But no matter how this assignment is made, the overall formula will come out true. For if the first conjunction $(A \wedge B)$ is not satisfied by a particular valuation, then one of A and B is assigned F, which will cause the corresponding later disjunct to be T.

68.3 Definition and examples

A formula of propositional logic is a **tautology** if the formula itself is always true regardless of which valuation is used for the propositional variables.

There are infinitely many tautologies. Examples include:

- $(A \vee \neg A)$ ("A or not A"), the **law of the excluded middle**. This formula has only one propositional variable, A . Any valuation for this formula must, by definition, assign A one of the truth values *true* or *false*, and assign $\neg A$ the other truth value.
- $(A \rightarrow B) \Leftrightarrow (\neg B \rightarrow \neg A)$ ("if A implies B then not-B implies not-A", and vice versa), which expresses the law of **contraposition**.
- $((\neg A \rightarrow B) \wedge (\neg A \rightarrow \neg B)) \rightarrow A$ ("if not-A implies both B and its negation not-B, then not-A must be false, then A must be true"), which is the principle known as **reductio ad absurdum**.
- $\neg(A \wedge B) \Leftrightarrow (\neg A \vee \neg B)$ ("if not both A and B, then not-A or not-B", and vice versa), which is known as **de Morgan's law**.
- $((A \rightarrow B) \wedge (B \rightarrow C)) \rightarrow (A \rightarrow C)$ ("if A implies B and B implies C, then A implies C"), which is the principle known as **sylogism**.

- $((A \vee B) \wedge (A \rightarrow C) \wedge (B \rightarrow C)) \rightarrow C$ (if at least one of A or B is true, and each implies C , then C must be true as well), which is the principle known as **proof by cases**.

A minimal tautology is a tautology that is not the instance of a shorter tautology.

- $(A \vee B) \rightarrow (A \vee B)$ is a tautology, but not a minimal one, because it is an instantiation of $C \rightarrow C$.

68.4 Verifying tautologies

The problem of determining whether a formula is a tautology is fundamental in propositional logic. If there are n variables occurring in a formula then there are 2^n distinct valuations for the formula. Therefore the task of determining whether or not the formula is a tautology is a finite, mechanical one: one need only evaluate the **truth value** of the formula under each of its possible valuations. One algorithmic method for verifying that every valuation causes this sentence to be true is to make a **truth table** that includes every possible valuation.

For example, consider the formula

$$((A \wedge B) \rightarrow C) \Leftrightarrow (A \rightarrow (B \rightarrow C)).$$

There are 8 possible valuations for the propositional variables A, B, C , represented by the first three columns of the following table. The remaining columns show the truth of subformulas of the formula above, culminating in a column showing the truth value of the original formula under each valuation.

Because each row of the final column shows T , the sentence in question is verified to be a tautology.

It is also possible to define a **deductive system** (proof system) for propositional logic, as a simpler variant of the deductive systems employed for first-order logic (see Kleene 1967, Sec 1.9 for one such system). A proof of a tautology in an appropriate deduction system may be much shorter than a complete truth table (a formula with n propositional variables requires a truth table with 2^n lines, which quickly becomes infeasible as n increases). Proof systems are also required for the study of intuitionistic propositional logic, in which the method of truth tables cannot be employed because the law of the excluded middle is not assumed.

68.5 Tautological implication

Main article: **Tautological consequence**

A formula R is said to **tautologically imply** a formula S if every valuation that causes R to be true also causes S to be true. This situation is denoted $R \models S$. It is equivalent to the formula $R \rightarrow S$ being a tautology (Kleene 1967 p. 27).

For example, let S be $A \wedge (B \vee \neg B)$. Then S is not a tautology, because any valuation that makes A false will make S false. But any valuation that makes A true will make S true, because $B \vee \neg B$ is a tautology. Let R be the formula $A \wedge C$. Then $R \models S$, because any valuation satisfying R makes A true and thus makes S true.

It follows from the definition that if a formula R is a contradiction then R tautologically implies every formula, because there is no truth valuation that causes R to be true and so the definition of tautological implication is trivially satisfied. Similarly, if S is a tautology then S is tautologically implied by every formula.

68.6 Substitution

Main article: **Substitution instance**

There is a general procedure, the **substitution rule**, that allows additional tautologies to be constructed from a given tautology (Kleene 1967 sec. 3). Suppose that S is a tautology and for each propositional variable A in S a fixed

sentence S_A is chosen. Then the sentence obtained by replacing each variable A in S with the corresponding sentence S_A is also a tautology.

For example, let S be $(A \wedge B) \vee (\neg A) \vee (\neg B)$, a tautology. Let S_A be $C \vee D$ and let S_B be $C \rightarrow E$. It follows from the substitution rule that the sentence

$((C \vee D) \wedge (C \rightarrow E)) \vee (\neg(C \vee D)) \vee (\neg(C \rightarrow E))$ is a tautology. In turn, a tautology may be substituted for the truth value "true": for instance, when "true" is symbolized by "1", a tautology may be substituted for "1".

68.7 Efficient verification and the Boolean satisfiability problem

The problem of constructing practical algorithms to determine whether sentences with large numbers of propositional variables are tautologies is an area of contemporary research in the area of **automated theorem proving**.

The method of **truth tables** illustrated above is provably correct – the truth table for a tautology will end in a column with only T , while the truth table for a sentence that is not a tautology will contain a row whose final column is F , and the valuation corresponding to that row is a valuation that does not satisfy the sentence being tested. This method for verifying tautologies is an **effective procedure**, which means that given unlimited computational resources it can always be used to mechanistically determine whether a sentence is a tautology. This means, in particular, the set of tautologies over a fixed finite or countable alphabet is a **decidable set**.

As an **efficient procedure**, however, truth tables are constrained by the fact that the number of valuations that must be checked increases as 2^k , where k is the number of variables in the formula. This exponential growth in the computation length renders the truth table method useless for formulas with thousands of propositional variables, as contemporary computing hardware cannot execute the algorithm in a feasible time period.

The problem of determining whether there is any valuation that makes a formula true is the **Boolean satisfiability problem**; the problem of checking tautologies is equivalent to this problem, because verifying that a sentence S is a tautology is equivalent to verifying that there is no valuation satisfying $\neg S$. It is known that the Boolean satisfiability problem is **NP complete**, and widely believed that there is no **polynomial-time algorithm** that can perform it. Current research focuses on finding algorithms that perform well on special classes of formulas, or terminate quickly on average even though some inputs may cause them to take much longer.

68.8 Tautologies versus validities in first-order logic

The fundamental definition of a tautology is in the context of propositional logic. The definition can be extended, however, to sentences in **first-order logic** (see Enderton (2002, p. 114) and Kleene (1967 secs. 17–18)). These sentences may contain quantifiers, unlike sentences of propositional logic. In the context of first-order logic, a distinction is maintained between **logical validities**, sentences that are true in every model, and **tautologies**, which are a proper subset of the first-order logical validities. In the context of propositional logic, these two terms coincide.

A tautology in first-order logic is a sentence that can be obtained by taking a tautology of propositional logic and uniformly replacing each propositional variable by a first-order formula (one formula per propositional variable). For example, because $A \vee \neg A$ is a tautology of propositional logic, $(\forall x(x = x)) \vee (\neg \forall x(x = x))$ is a tautology in first order logic. Similarly, in a first-order language with a unary relation symbols R, S, T , the following sentence is a tautology:

$$(((\exists x Rx) \wedge \neg(\exists x Sx)) \rightarrow \forall x Tx) \Leftrightarrow ((\exists x Rx) \rightarrow ((\neg \exists x Sx) \rightarrow \forall x Tx)).$$

It is obtained by replacing A with $\exists x Rx$, B with $\neg \exists x Sx$, and C with $\forall x Tx$ in the propositional tautology $((A \wedge B) \rightarrow C) \Leftrightarrow (A \rightarrow (B \rightarrow C))$.

Not all logical validities are tautologies in first-order logic. For example, the sentence

$$(\forall x Rx) \rightarrow \neg \exists x \neg Rx$$

is true in any first-order interpretation, but it corresponds to the propositional sentence $A \rightarrow B$ which is not a tautology of propositional logic.

68.9 See also

68.9.1 Normal forms

- Algebraic normal form
- Conjunctive normal form
- Disjunctive normal form
- Logic optimization

68.9.2 Related logical topics

68.10 References

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68.11 External links

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Chapter 69

Trilemma

A **trilemma** is a difficult choice from three options, each of which is (or appears) unacceptable or unfavourable.

There are two **logically equivalent** ways in which to express a trilemma: it can be expressed as a choice among three unfavourable options, one of which must be chosen, or as a choice among three favourable options, only two of which are possible at the same time.

The term derives from the much older term **dilemma**, a choice between two or more difficult or unfavourable alternatives.

The earliest recorded use of the term was by the British preacher **Philip Henry** in 1672, and later, apparently independently, by the preacher **Isaac Watts** in 1725.*[1]

69.1 Trilemmas in religion

69.1.1 Epicurus' trilemma

One of the earliest uses of the trilemma formulation is that of the Greek philosopher **Epicurus**, rejecting the idea of an **omnipotent** and **omnibenevolent** God (as summarised by **David Hume**):*[2]

1. If God is unable to prevent evil, then he is not all-powerful.
2. If God is not willing to prevent evil, then he is not all-good.
3. If God is both willing and able to prevent evil, then why does evil exist?

Although traditionally ascribed to Epicurus, it has been suggested that it may actually be the work of an early **skeptic** writer, possibly **Carneades**.*[3]

In studies of philosophy, discussions and debates related to this trilemma are often referred to as being about the "**problem of evil**".

69.1.2 Apologetic trilemma

Main article: **Lewis's trilemma**

One well known trilemma is sometimes used by **Christian apologists** as a proof of the divinity of **Jesus**,*[4] and is most commonly known in the version by **C. S. Lewis**. It proceeds from the assumption that Jesus claimed to be God, and that therefore one of the following must be true:*[5]

1. *Lunatic*: Jesus was not God, but he mistakenly believed that he was.
2. *Liar*: Jesus was not God, and he knew it, but he said so anyway.

3. *Lord*: Jesus is God.

The trilemma, usually in Lewis' formulation, is often used in works of popular apologetics, although it is almost totally absent from discussions about the status of Jesus by professional theologians and biblical scholars.*[6] In his 1993 book *The Metaphor of God Incarnate*, John Hick recalled having been taught this argument as a child, and states that New Testament scholars today do not support the view that Jesus claimed to be God.*[7]

69.2 Trilemma in law

69.2.1 The “cruel trilemma”

Main article: [Ex officio oath](#)

The “cruel trilemma”*[8] was an English ecclesiastical and judicial weapon*[9] developed in the first half of the 17th century, and used as a form of coercion and persecution. The format was a religious oath to tell the truth, imposed upon the accused prior to questioning. The accused would find themselves trapped between:

1. A breach of religious oath if they lied (taken extremely seriously in that era, a mortal sin,*[8] and perjury);
2. Self-incrimination if they told the truth; or
3. Contempt of court if they said nothing and were silent.

Outcry over this process led to the foundation of the right to not incriminate oneself being established in common law and was the direct precursor of the right to silence and non-self-incrimination in the Fifth Amendment to the United States Constitution.

69.3 Trilemmas in philosophy

69.3.1 The Münchhausen trilemma

Main article: [Münchhausen trilemma](#)

In the theory of knowledge the Münchhausen trilemma is a philosophical term coined to stress the impossibility to prove any *certain* truth even in the fields of logic and mathematics. Its name is going back to a logical proof of the German philosopher Hans Albert. This proof runs as follows: All of the only three possible attempts to get a certain justification must fail:

1. All justifications in pursuit of *certain* knowledge have also to justify the means of their justification and doing so they have to justify anew the means of their justification. Therefore there can be no end. We are faced with the hopeless situation of an infinite regression.
2. One can stop at self-evidence or common sense or fundamental principles or speaking 'ex cathedra' or at any other evidence, but in doing so the intention to install *certain* justification is abandoned.
3. The third horn of the trilemma is the application of a circular argument.

69.3.2 The trilemma of censorship

In Mill's *On Liberty*, as a part of his argument against the suppression of free speech, he describes the trilemma facing those attempting to justify such suppression (although he does not refer to it as a trilemma Leo Parker-Rees (2009) identified it as such). If free speech is suppressed, the opinion suppressed is either:*[10]

1. True – in which case society is robbed of the chance to exchange error for truth;

2. False – in which case the opinion would create a 'livelier impression' of the truth, allowing people to justify the correct view;
3. Half-true – in which case it would contain a forgotten element of the truth, that is important to rediscover, with the eventual aim of a synthesis of the conflicting opinions that is the whole truth.

69.4 Trilemmas in economics

69.4.1 “The Uneasy Triangle”

In 1952, the British magazine, *The Economist*, published a series of articles on an “Uneasy Triangle,” which described “the three-cornered incompatibility between a stable price level, full employment, and . . . free collective bargaining.” The context was the difficulty maintaining external balance without sacrificing two sacrosanct political values, jobs for all and unrestricted labor rights. Inflation resulting from labor militancy in the context of full employment put powerful downward pressure on the pound sterling. Runs on the pound triggered a long series of economically and politically disruptive “stop-go” policies (deflation followed by reflation).^{*[11]} John Maynard Keynes had anticipated the severe problem associated with reconciling full employment with stable prices without sacrificing democracy and the associational rights of labor.^{*[12]} The same incompatibilities were also elaborated on in Charles Lindblom's 1949 book, *Unions and Capitalism*.^{*[13]}

69.4.2 The “Impossible trinity”

Main article: [Impossible trinity](#)

In 1962 and 1963, a trilemma (or “impossible trinity”) was introduced by economists [Robert Mundell](#) and [Marcus Fleming](#) in articles discussing the problems with creating a stable international financial system. It refers to the trade-offs among the following three goals: a [fixed exchange rate](#), national independence in [monetary policy](#), and capital mobility. According to the [Mundell–Fleming model](#) of 1962 and 1963, a small, open economy cannot achieve all three of these policy goals at the same time: in pursuing any two of these goals, a nation must forgo the third.^{*[14]}

69.4.3 Wage policy trilemmas

In 1989 Peter Swenson posited the existence of “wage policy trilemmas” encountered by trade unions trying to achieve three egalitarian goals simultaneously. One involved attempts to compress wages within a bargaining sector while compressing wages between sectors and maximizing access to employment in the sector. A variant of this “horizontal” trilemma was the “vertical” wage policy trilemma associated with trying simultaneously to compress wages, increase the wage share of value added at the expense of profits, and maximize employment. These trilemmas helped explain instability in unions' wage policies and their political strategies seemingly designed to resolve the incompatibilities.^{*[15]}

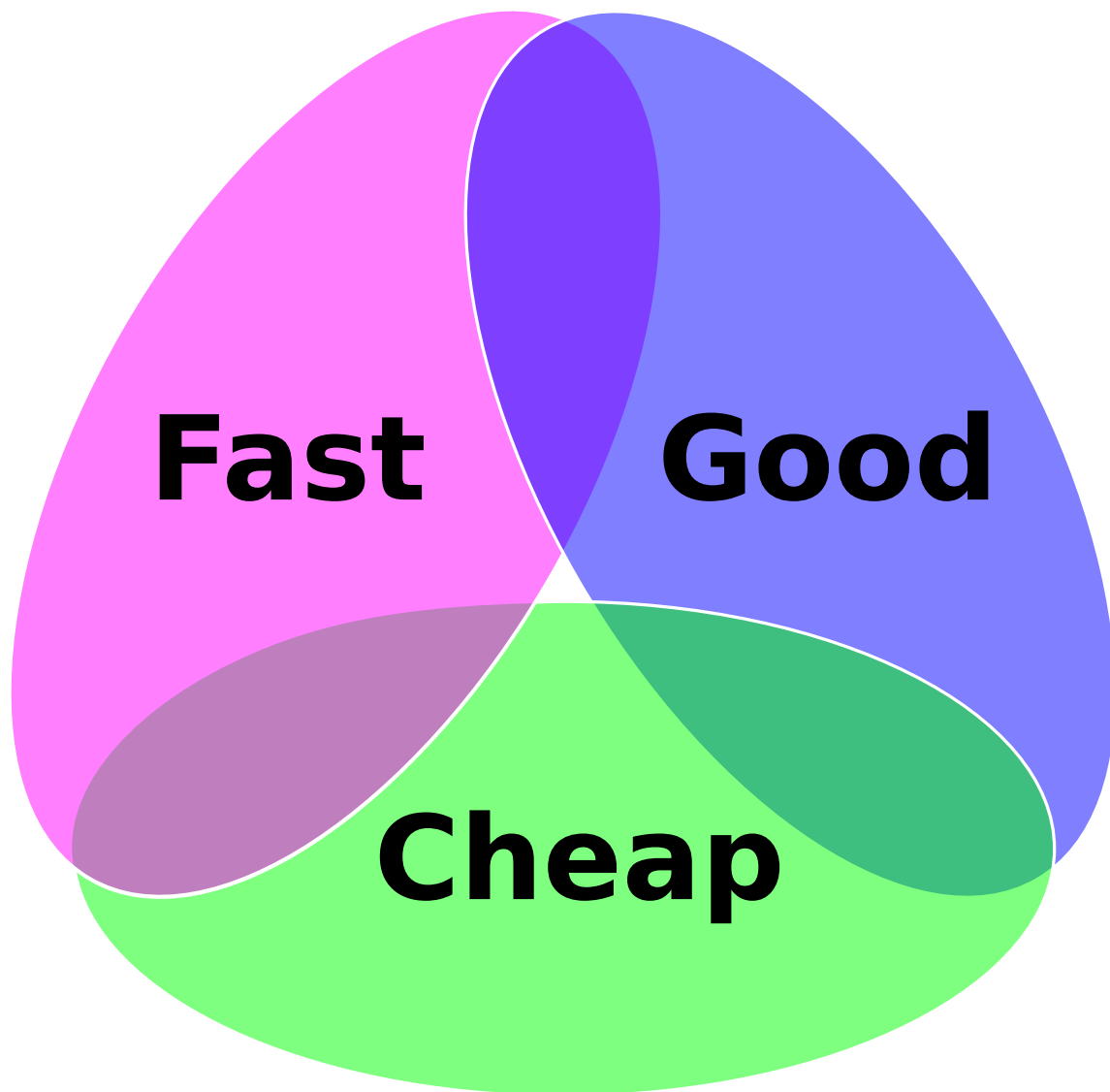
69.4.4 The Pinker social trilemma

[Steven Pinker](#) proposed another social trilemma in his books *How the Mind Works* and *The Blank Slate*: that a society cannot be simultaneously “fair”, “free” and “equal”. If it is “fair”, individuals who work harder will accumulate more wealth; if it is “free”, parents will leave the bulk of their inheritance to their children; but then it will not be “equal”, as people will begin life with different fortunes.

69.5 Trilemmas in business

69.5.1 The project-management trilemma

[Arthur C. Clarke](#) cited a management trilemma encountered when trying to achieve production quickly and cheaply while maintaining high quality.^{*[16]} In the [software](#) industry, this means that one can pick any two of: fastest time to



The project management triangle as a “pick any two” Euler diagram.

market, highest software quality (fewest defects), and lowest cost (headcount). This is the basis of the popular project management aphorism “Quick, Cheap, Good: Pick two,” conceptualized as the project management triangle.

69.6 Trilemma in computing

The RAID technology may offer two of the three desirable value: (relative) inexpensiveness, speed or reliability (RAID0 is fast and cheap, but unreliable; RAID60 is extremely expensive and reliable, with correct performance and so on). The phrase “fast, cheap, good: choose two” .

It had been pastiched in silent computing as “fast, cheap, quiet: choose two” .

Further trilemma in computing include the CAP theorem about guarantees provided by distributed systems, and Zooko's triangle for naming participants in network protocols.

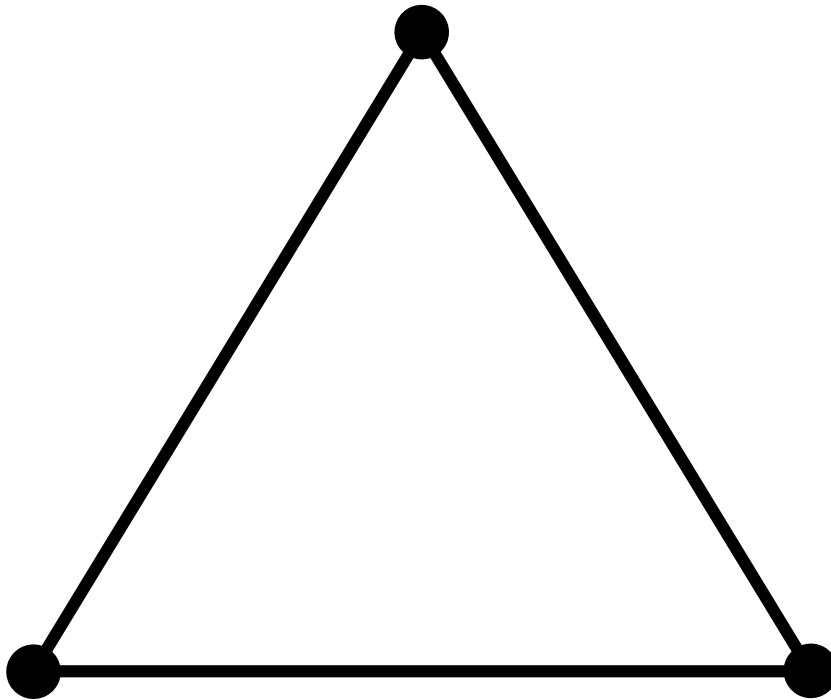
69.7 The Trilemma of the Earth

The “Trilemma of the Earth” (or “3E Trilemma”) is a term used by scientists working on energy and environment protection. 3E Trilemma stands for Economy-Energy-Environment interaction.

For the activation of **economic development** (E: Economy) to occur, we need to increase the **energy expenditure** (E: Energy) however this raises the environmental issue (E: Environment) of more emissions of **pollutant gases**.* [17]* [18]

See also: **renewable energy**, **clean energy** and **world population**

69.8 The Žižek trilemma



Depiction of the Žižek Trilemma

The “Žižek trilemma” is a humorous formulation on the incompatibility of certain personal **virtues** under a constraining **ideological** framework. Often attributed to the philosopher **Slavoj Žižek**, it is actually quoted by him as the product of an anonymous source:

One cannot but recall here a witty formula of life under a hard **Communist regime**: Of the three features —personal honesty, sincere support of the regime and intelligence —it was possible to combine only two, never all three. If one were honest and supportive, one was not very bright; if one were bright and supportive, one was not honest; if one were honest and bright, one was not supportive.* [19]

69.9 See also

- **Project triangle**
- **Ternary plot**

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- [7] Hick, John. *The Metaphor of God Incarnate*. p. 27. A further point of broad agreement among New Testament scholars ... is that the historical Jesus did not make the claim to deity that later Christian thought was to make for him: he did not understand himself to be God, or God the Son, incarnate. ... such evidence as there is has led the historians of the period to conclude, with an impressive degree of unanimity, that Jesus did not claim to be God incarnate.
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69.11 External links

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Chapter 70

Truth value

“True and false” redirects here. For the book, see [True and False: Heresy and Common Sense for the Actor](#). For the Unix commands, see [true and false \(commands\)](#). For other uses, see [True \(disambiguation\)](#) and [False \(disambiguation\)](#).

In logic and mathematics, a **truth value**, sometimes called a **logical value**, is a value indicating the relation of a proposition to truth.

70.1 Classical logic

In classical logic, with its intended semantics, the truth values are **true** (1 or T) and **untrue** or **false** (0 or $\perp$); that is, classical logic is a **two-valued logic**. This set of two values is also called the **Boolean domain**. Corresponding semantics of logical connectives are **truth functions**, whose values are expressed in the form of **truth tables**. Logical biconditional becomes the **equality** binary relation, and **negation** becomes a **bijection** which **permutes** true and false. Conjunction and disjunction are **dual** with respect to negation, which is expressed by **De Morgan's laws**:

$$\neg(p \wedge q) \Leftrightarrow \neg p \vee \neg q$$

$$\neg(p \vee q) \Leftrightarrow \neg p \wedge \neg q$$

Propositional variables become **variables** in the Boolean domain. Assigning values for propositional variables is referred to as **valuation**.

70.2 Intuitionistic and constructive logic

Main article: [Constructivism \(mathematics\)](#)

In **intuitionistic logic**, and more generally, **constructive mathematics**, statements are assigned a truth value only if they can be given a constructive proof. It starts with a set of axioms, and a statement is true if you can build a proof of the statement from those axioms. A statement is false if you can deduce a contradiction from it. This leaves open the possibility of statements that have not yet been assigned a truth value.

Unproved statements in Intuitionistic logic are not given an intermediate truth value (as is sometimes mistakenly asserted). Indeed, you can prove that they have no third truth value, a result dating back to Glivenko in 1928*[\[1\]](#)

Instead statements simply remain of unknown truth value, until they are either proved or disproved.

There are various ways of interpreting Intuitionistic logic, including the **Brouwer–Heyting–Kolmogorov** interpretation. See also, [Intuitionistic Logic - Semantics](#).

70.3 Multi-valued logic

Multi-valued logics (such as **fuzzy logic** and **relevance logic**) allow for more than two truth values, possibly containing some internal structure. For example, on the **unit interval** $[0,1]$ such structure is a **total order**; this may be expressed as existence of various **degrees of truth**.

70.4 Algebraic semantics

Main article: **Algebraic logic**

Not all **logical systems** are truth-valuational in the sense that logical connectives may be interpreted as truth functions. For example, **intuitionistic logic** lacks a complete set of truth values because its semantics, the **Brouwer–Heyting–Kolmogorov interpretation**, is specified in terms of **provability conditions**, and not directly in terms of the **necessary truth** of formulae.

But even non-truth-valuational logics can associate values with logical formulae, as is done in **algebraic semantics**. The algebraic semantics of intuitionistic logic is given in terms of **Heyting algebras**, compared to **Boolean algebra** semantics of classical propositional calculus.

70.5 In other theories

Intuitionistic type theory uses **types** in the place of truth values.

Topos theory uses truth values in a special sense: the truth values of a topos are the **global elements** of the subobject classifier. Having truth values in this sense does not make a logic truth valuational.

70.6 See also

- **Agnosticism**
- **Bayesian probability**
- **Circular reasoning**
- **Degree of truth**
- **False dilemma**
- **History of logic#Algebraic period**
- **Paradox**
- **Semantic theory of truth**
- **Slingshot argument**
- **Supervaluationism**
- **Truth-value semantics**
- **Verisimilitude**

70.7 References

- [1] **Proof that intuitionistic logic has no third truth value**, Glivenko 1928

70.8 External links

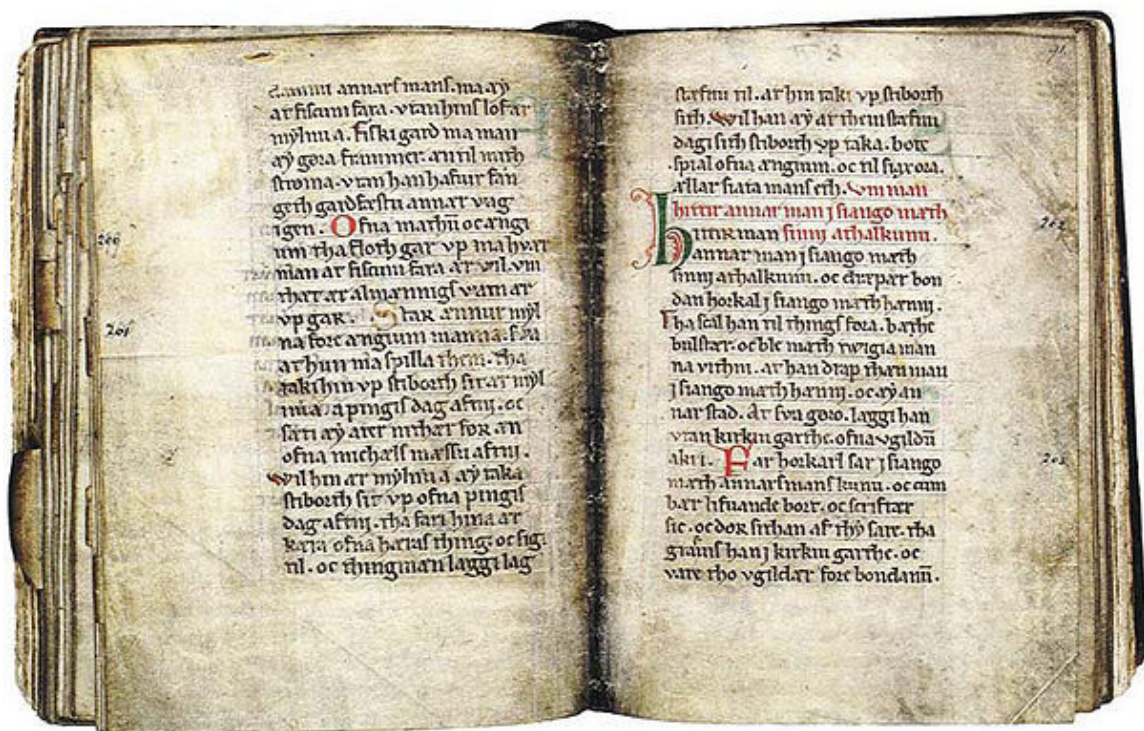
- [Truth Values](#) entry by Yaroslav Shramko, Heinrich Wansing in the *Stanford Encyclopedia of Philosophy*

Chapter 71

Vernacular

For other uses, see Vernacular (disambiguation).

A **vernacular** or **vernacular language** is the native language or native dialect of a specific population, especially as distinguished from a literary, national or standard language, or a lingua franca used in the region or state inhabited by that population.



The oldest known vernacular manuscript in Scanian (Danish, c. 1250.) It deals with Scanian and Scanian Ecclesiastical Law.

71.1 Etymology

The use of “vernacular” is not recent. In 1688, James Howell wrote:

Concerning Italy, doubtless there were divers before the Latin did spread all over that Country; the Calabrian, and Apulian spoke Greek, whereof some Relicks are to be found to this day; but it was an adventitious, no Mother-Language to them: 'tis confess'd that Latium it self, and all the Territories about



An allegory of philosophy and grammar, Trinci Palace, Foligno, Italy, by Gentile da Fabriano, who lived at about the time the Italian language was being standardized.

Rome, had the Latin for its maternal and common first **vernacular** Tongue; but Tuscany and Liguria had others quite discrepant, viz. the Hetruscane and Mesapian, whereof though there be some Records yet extant; yet there are none alive that can understand them: The Oscan, the Sabin and Tusculan, are thought to be but Dialects to these.

Here vernacular, mother language and dialect are already in use in a modern sense.*[1] According to Merriam-Webster,*[2] “vernacular” was brought into the English language as early as 1601 from the Latin *vernaculus* (“native”) which had been in figurative use in Classical Latin as “national” and “domestic” , having originally been derived from *vernus* and *verna*, a male or female slave respectively born in the house rather than abroad. The figurative meaning was broadened from the diminutive extended words *vernaculus*, *vernacula*. Varro, the classical Latin grammarian, used the term *vocabula vernacula*, “termes de la langue nationale” or “vocabulary of the national language” as opposed to foreign words.*[3]

71.2 Concepts of the vernacular

71.2.1 General linguistics

In contrast with lingua franca

In general linguistics, a vernacular is contrasted with a *lingua franca*, a third-party language in which persons speaking different vernaculars not understood by each other may communicate.*[5] For instance, in Western Europe until the 17th century, most scholarly works had been written in Latin, which was serving as a lingua franca. Works written in Romance languages are said to be in the vernacular. The *Divina Commedia*, the *Cantar de mio Cid*, and The Song of Roland are examples of early vernacular literature in Italian, Spanish, and French, respectively.



Allegory of Dante Alighieri, champion of the use of vernacular Italian for literature rather than the lingua franca, Latin. Fresco by Luca Signorelli in the cappella di San Brizio dome, Orvieto.

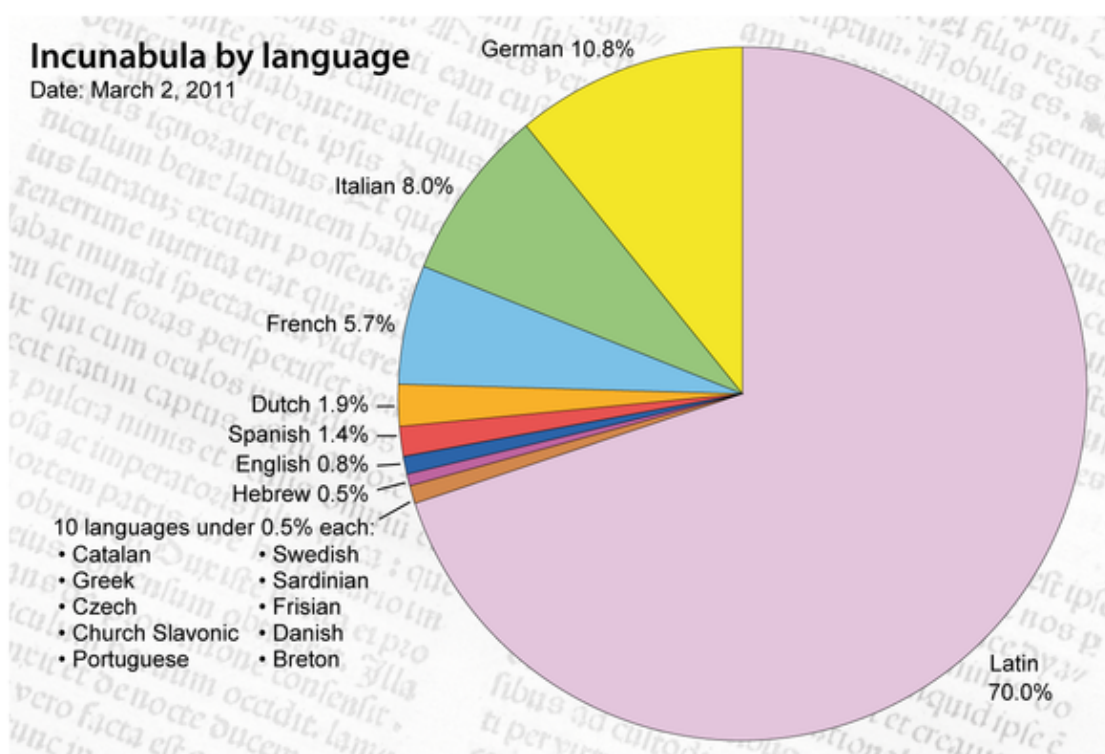
In Europe, Latin was used widely instead of vernacular languages in varying forms until c. 1701, in its latter stage as New Latin.

In religion, Protestantism was a driving force in the use of the vernacular in Christian Europe, the Bible being translated from Latin into vernacular languages with such works as the Bible in Dutch: published in 1526 by Jacob van Liesvelt; Bible in French: published in 1528 by Jacques Lefevre d'Étaples (or Faber Stapulensis); German Luther Bible in 1534 (New Testament 1522); Bible in Spanish: published in Basel in 1569 by Casiodoro de Reina (Biblia del Oso); Bible in Czech: Bible of Kralice, printed between 1579 and 1593; Bible in English: King James Bible, published in 1611; Bible in Slovene, published in 1584 by Jurij Dalmatin. In Catholicism, vernacular bibles were later provided, but Latin was used at Tridentine Mass until the Second Vatican Council of 1965. Certain groups, notably Traditionalist Catholics, continue to practice Latin Mass.

In India, the 12th century Bhakti movement led to the translation of Sanskrit texts to the vernacular.

In science, an early user of the vernacular was Galileo, writing in Italian c. 1600, though some of his works remained in Latin. A later example is Isaac Newton, whose 1687 *Principia* was in Latin, but whose 1704 *Opticks* was in English. Latin continues to be used in certain fields of science, notably binomial nomenclature in biology, while other fields such as mathematics use vernacular; see scientific nomenclature for details.

In diplomacy, French displaced Latin in Europe in the 1710s, due to the military power of Louis XIV of France.



Ratio of books printed in the vernacular languages to those in Latin in the 15th century* [4]

Certain languages have both a classical form and various vernacular forms, with two widely used examples being Arabic and Chinese: see [Varieties of Arabic](#) and [Chinese language](#). In the 1920s, due to the [May Fourth Movement](#), [Classical Chinese](#) was replaced by written vernacular Chinese.

For more details on this topic, see [Vernacular literature](#).

As a low variant in diglossia

The vernacular is also often contrasted with a [liturgical language](#), a specialized use of a former *lingua franca*. For example, until the 1960s, [Roman Rite](#) Roman Catholics held [Masses](#) in [Latin](#) rather than in vernaculars; to this day the [Coptic Church](#) holds [liturgies](#) in [Coptic](#), not Arabic; the [Ethiopian Orthodox Church](#) holds liturgies in [Ge'ez](#) though parts of Mass are read in [Amharic](#).

Similarly, in [Hindu](#) culture, traditionally religious or scholarly works were written in [Sanskrit](#) (long after its use as a spoken language) or in [Tamil](#) in [Tamil country](#). Sanskrit was a *lingua franca* among the non-Indo-European languages of the Indian subcontinent and became more of one as the spoken language, or [prakrits](#), began to diverge from it in different regions. With the rise of the [bhakti movement](#) from the 12th century onwards, religious works were created in the other languages: [Hindi](#), [Kannada](#), [Telugu](#) and many others. For example, the [Ramayana](#), one of Hinduism's sacred epics in Sanskrit, had vernacular versions such as *Ranganadha Ramayanam* composed in [Telugu](#) by [Gona Buddha Reddy](#) in the 15th century; and *Ramacharitamansa*, a [Hindi](#) version of the [Ramayana](#) by the 16th-century poet [Tulsidas](#).

These circumstances are a contrast between a vernacular and language variant used by the same speakers. According to one school of linguistic thought, all such variants are examples of a linguistic phenomenon termed [diglossia](#) (“split tongue” , on the model of the genetic anomaly* [6]). In it, the language is bifurcated, i.e. the speaker learns two forms of the language and ordinarily uses one but under special circumstances the other. The one most frequently used is the low (L) variant, equivalent to the vernacular, while the special variant is the high (H). The concept was introduced to linguistics by [Charles A. Ferguson](#) (1959), but Ferguson explicitly excluded variants as divergent as dialects or different languages or as similar as styles or registers. H must not be a conversational form; Ferguson had in mind a literary language. For example, a lecture is delivered in a different variety than ordinary conversation.

Ferguson's own example was classical and spoken Arabic, but the analogy between **Vulgar Latin** and **Classical Latin** is of the same type. Excluding the upper-class and lower-class register aspects of the two variants, Classical Latin was a literary language; the people spoke Vulgar Latin as a vernacular.

Joshua Fishman redefined the concept in 1964 to include everything Ferguson had excluded. Fishman allowed both different languages and dialects and also different styles and registers as the H variants. The essential contrast between them was that they be “functionally differentiated”; that is, H must be used for special purposes, such as a liturgical or sacred language. Fasold expanded the concept still further by proposing that multiple H exist in society from which the users can select for various purposes. The definition of an H is intermediate between Ferguson's and Fishman's. Realizing the inappropriateness of the term diglossia (only two) to his concept, he proposes the term broad diglossia.* [7]

71.2.2 Sociolinguistics

Within **sociolinguistics**, the term “vernacular” has been applied to several concepts. Context, therefore, is crucial to determining its intended sense.

As an informal register

In variation theory, pioneered by **William Labov**, language is a large set of styles or **registers** from which the speaker selects according to the social setting of the moment. The vernacular is “the least self-conscious style of people in a relaxed conversation”, or “the most basic style”; that is, casual varieties used spontaneously rather than self-consciously, informal talk used in intimate situations. In other contexts the speaker does conscious work to select the appropriate variations. The one he can use without this effort is the first form of speech acquired.* [8]

As a non-standard dialect

In another theory, the vernacular is opposed to the standard. The non-standard varieties thus defined are dialects, which are to be identified as complexes of factors: “social class, region, ethnicity, situation, and so forth.” Both the standard and the non-standard language have dialects, but in contrast to the standard, the non-standard have “socially disfavored” structures. The standard are primarily written, but the non-standard are spoken. An example of a vernacular dialect is **African American Vernacular English**.* [9]

As an idealisation

A vernacular is not a real language but is “an abstract set of norms.”* [10]

71.3 First vernacular grammar

Vernaculars acquired the status of **official languages** through **metalinguistic** publications. Between 1437 and 1586, the first **grammar** of **Italian**, **Spanish**, **French**, **Dutch**, **German** and **English** were written, though not always immediately published. It is to be understood that the first vestiges of those languages preceded their standardization by up to several hundred years.

Dutch A sermon of 1275 AD by Berthold von Regensburg made the earliest known distinction between the speech of the *Niderlender* and that of the *Oberlender*. The *Niderlender*, or speakers of **Low German**, were anyone living in the lowlands from the **Baltic Sea** to the **Netherlands**, while the *Oberlender*, who spoke **High German**, lived in more elevated terrain.* [11] The first known such distinction was made in Dutch – a Low German variant – in a printed book of 1482, which mentioned *nederlantsche* and *oberlantsche sprake*, still with the same ranges,* [12] with the meaning of *neder duitsche* and *hoghen duitsche*. **Martin Luther**, however, a generation later, used *Niderlender* to mean the population of the **Burgundian Netherlands**, a small state consisting of several lowland counties ruled by the **Duke of Burgundy** since its creation by **Charles the Bald** of the **Holy Roman Empire** in 843.* [11] By that time also northern Germany was using *düdesch* for their variant as opposed to *duitsch* in the Low Countries. The southerners referred to their speech as *diutesch*.

In the 16th century, while Martin Luther was working out a compromise High German for his translation of the Bible, the so-called *rederijerskamers*, "chambers of rhetoric," learned literary societies founded throughout Flanders and Holland from the 1420s onward, first attempted to impose a Latin structure on Dutch, on the presumption that Latin grammar had a "universal character." * [13] However in 1559 Jan van den Werve published his grammar *Den schat der Duytsscher Talen* in Dutch and so did Dirck Volckertszoon Coornhert (*Eenen nieuwen ABC of Materi-boeck*) in 1564. The Latinizing tendency changed course with the joint publication in 1584 by De Eglantier, the rhetoric society of Amsterdam, of the first comprehensive Dutch grammar, *Twe-spraak vande Nederduitsche letterkunst/ ofte Vant spellen ende eyghenscap des Nederduitschen taals*. Hendrick Laurenszoon Spiegel was a major contributor but others contributed as well.

For more details on this topic, see [History of Dutch](#).

English Modern English is considered to have begun at a conventional date of about 1550, most notably at the end of the Great Vowel Shift (for example, "bot", the footwear, more as in "boat" to "boot"). It was created by the infusion of Old French into Old English after the Norman conquest of 1066 AD and of Latin at the instigation of the clerical administration. While present-day English-speaking students may be able to read Middle English authors such as Chaucer with some schooling, Old English is much more difficult.

Middle English is known for its alternative spellings and pronunciations. The British Isles, although geographically limited, have always supported populations of widely variant dialects (as well as a few different languages). Being the language of a maritime power, English was of necessity formed from elements of many different languages. Standardization has been an ongoing issue. Even in the age of modern communications and mass media, according to one study, * [14] "...although the Received Pronunciation of Standard English has been heard constantly on radio and then television for over 60 years, only 3 to 5% of the population of Britain actually speaks RP ... new brands of English have been springing up even in recent times" What the vernacular would be in this case is a moot point: "...the standardisation of English has been in progress for many centuries."

Modern English came into being as the standard Middle English, i.e. as the preferred dialect of the monarch, court and administration. That dialect was East Midland, which had spread to London where the king resided and from which he ruled. It contained Danish forms not often used in the north or south, as the Danes had settled heavily in the midlands. Chaucer wrote in an early East Midland, Wycliffe translated the New Testament into it and William Caxton, the first English printer, wrote in it. Caxton is considered the first modern English author. * [15] The first printed book in England was Chaucer's *Canterbury Tales*, published by Caxton in 1476.

The first English grammars were written in Latin, with some in French. * [16] After a general plea for mother-tongue education in England: *The first part of the elementary*, published in 1582 by Richard Mulcaster, * [17] William Bullokar wrote the first English grammar to be written in English: *Pamphlet for Grammar*, followed by *Bref Grammar*, both in 1586. Previously he had written *Booke at Large for the Amendment of Orthography for English Speech* (1580) but his orthography was not generally accepted and was soon supplanted, and his grammar shared a similar fate. Other grammars in English followed rapidly: Paul Greaves' *Grammatica Anglicana*, 1594; Alexander Hume's *Orthographie and Congruitie of the Britain Tongue*, 1617, and many others. * [18] Over the succeeding decades many literary figures turned a hand to grammar in English: Alexander Gill, Ben Jonson, Joshua Poole, John Wallis, Jeremiah Wharton, James Howell, Thomas Lye, Christopher Cooper, William Lily, John Colet and so on, all leading to the massive dictionary of Samuel Johnson.

For more details on this topic, see [History of English](#).

French French (as Old French) emerged as a Gallo-Romance language from Vulgar Latin during late antiquity. The written language is known from at least as early as the 9th century. That language contained many forms still identifiable as Latin. Interest in standardizing French began in the 16th century. * [19] Because of the Norman conquest of England and the Anglo-Norman domains in both northwestern France and Britain, English scholars retained an interest in the fate of French as well as of English. Some of the numerous 16th-century surviving grammars are:

- John Palsgrave, *L'esclaircissement de la langue francoyse* (1530; in English).
- Louis Meigret, *Tretté de la grammaire françoize* (1550).
- Robert Stephanus: *Traicté de la grammaire françoise* (1557).

For more details on this topic, see [Old French](#).

German The development of a standard German was impeded by political disunity and strong local traditions until the invention of printing made possible a "High German-based book language." *[20] This literary language was not identical to any specific variety of German. The first grammar evolved from pedagogical works that also tried to create a uniform standard from the many regional dialects for various reasons. Religious leaders wished to create a sacred language for Protestantism that would be parallel to the use of Latin for the Roman Catholic Church. Various administrations wished to create a civil service, or chancery, language that would be useful in more than one locality. And finally, nationalists wished to counter the spread of the French national language into German-speaking territories assisted by the efforts of the French Academy.

With so many linguists moving in the same direction a standard German (*hochdeutsche Schriftsprache*) did evolve without the assistance of a language academy. Its precise origin, the major constituents of its features, remains uncertainly known and debatable. Latin prevailed as a *lingua franca* until the 17th century, when grammarians began to debate the creation of an ideal language. Before 1550 as a conventional date "supraregional compromises" were used in printed works, such as the one published by Valentin Ickelsamer (*Ein Teutsche Grammatica*) 1534. Books published in one of these artificial variants began to increase in frequency replacing the Latin then in use. After 1550 the supraregional ideal broadened to a universal intent to create a national language from Early New High German by deliberately ignoring regional forms of speech, *[21] which practice was considered to be a form of purification parallel to the ideal of purifying religion in Protestantism.

In 1617, the Fruitbearing Society, a language club, was formed in Weimar in imitation of the Accademia della Crusca in Italy. It was one of many such clubs; however, none became a national academy. In 1618–1619 Johannes Kromayer wrote the first all-German grammar. *[22] In 1641 Justin Georg Schottel in *teutsche Sprachkunst* presented the standard language as an artificial one. By the time of his work of 1663, *ausführliche Arbeit von der deutschen Haubt-Sprache*, the standard language was well established.

For more details on this topic, see [History of German](#).

Irish *Auraicept na n-Éces* is a grammar of the Irish language which is thought to date back as far as the 7th century: the earliest surviving manuscripts are 12th-century.

Italian Italian appears before standardization as the *lingua Italica* of Isidore and the *lingua vulgaris* of subsequent medieval writers. Documents of mixed Latin and Italian are known from the 12th century, which appears to be the start of writing in Italian. *[23]

The first known grammar of a Romance language was a book written in manuscript form by Leon Battista Alberti between 1437 and 1441 and entitled *Grammatica della lingua toscana*, "Grammar of the Tuscan Language." In it Alberti sought to demonstrate that the vernacular – here Tuscan, known today as modern Italian – was every bit as structured as Latin. He did so by mapping vernacular structures onto Latin.

The book was never printed until 1908. It was not generally known, but it was known, as an inventory of the library of Lorenzo de' Medici lists it under the title *Regule lingue florentine* ("Rules of the Florentine language"). The only known manuscript copy, however, is included in the codex, Reginense Latino 1370, located at Rome in the Vatican library. It is therefore called the *Grammatichetta vaticana*. *[24]

More influential perhaps were the 1516 *Regole grammaticali della volgar lingua* of Giovanni Francesco Fortunio and the 1525 *Prose della volgar lingua* of Pietro Bembo. In those works the authors strove to establish a dialect that would qualify for becoming the Italian national language. *[25]

For more details on this topic, see [Italian language](#).

Spanish Spanish (more accurately, *la lengua castellana*) has a development chronologically similar to that of Italian: some vocabulary in Isidore of Seville, traces afterward, writing from about the 12th century, standardization beginning in the 15th century, coincident with the rise of Castile as an international power. *[26] The first Spanish grammar by Antonio de Nebrija (*Tratado de gramática sobre la lengua Castellana*, 1492) was divided into parts for native and nonnative speakers, pursuing a different purpose in each: Books 1–4 describe the Spanish language grammatically in order to facilitate the study of Latin for its Spanish speaking readers. Book 5 contains a phonetical and morphological overview of Spanish for nonnative speakers.

For more details on this topic, see [History of Spanish](#).

Welsh The so-called *Grammar Books of the Master-poets* (Welsh: *Gramadegau'r Penceirddiaid*) are considered to have been composed in the early fourteenth century, and are present in manuscripts from soon after. These tractates draw on the traditions of the Latin grammars of Donatus and Priscianus and also on the teaching of the professional Welsh poets. The tradition of grammars of the [Welsh Language](#) developed from these through the Middle Ages and to the Renaissance.*[27]

71.4 First vernacular dictionaries

A dictionary is to be distinguished from a [glossary](#). Although numerous glossaries publishing vernacular words had long been in existence, such as the *Etymologiae* of [Isidore of Seville](#), which listed many Spanish words, the first vernacular [dictionaries](#) emerged together with vernacular grammars.

Dutch Glossaries in Dutch began about 1470 AD leading eventually to two [Dutch dictionaries](#):*[28]

- [Christophe Plantin](#): *Thesaurus Theutonicae Linguae*, 1573
- [Cornelis Kiliaan](#): *Dictionarium Teutonico-Latinum*, 1574 (becoming *Etymologicum* with the 1599 3rd edition)

Shortly after (1579) the [Southern Netherlands](#) came under the dominion of Spain, then of Austria (1713) and of France (1794). The [Congress of Vienna](#) created the [United Kingdom of the Netherlands](#) in 1815 from which southern Netherlands (being Catholic) seceded in 1830 to form the [Kingdom of Belgium](#), which was confirmed in 1839 by the [Treaty of London](#).*[29] As a result of this political instability no standard Dutch was defined (even though much in demand and recommended as an ideal) until after [World War II](#). Currently the [Dutch Language Union](#), an international treaty organization founded in 1980, supports a standard Dutch in the Netherlands, while [Afrikaans](#) is regulated by [Die Taalkommissie](#) founded in 1909.

English [Standard English](#) remains a quasi-fictional ideal, despite the numerous private organizations publishing prescriptive rules for it. No language academy was ever established or espoused by any government past or present in the English-speaking world. In practice the British monarchy and its administrations established an ideal of what good English should be considered to be, and this in turn was based on the teachings of the major universities, such as [Cambridge University](#) and [Oxford University](#), which relied on the scholars whom they hired. There is a general but far from uniform consensus among the leading scholars about what should or should not be said in standard English, but for every rule examples from famous English writers can be found that break it. Uniformity of spoken English never existed and does not exist now, but usages do exist, which must be learnt by the speakers, and do not conform to prescriptive rules.

Usages have been documented not by prescriptive grammars, which on the whole are less comprehensible to the general public, but by comprehensive dictionaries, often termed unabridged, which attempt to list all usages of words and the phrases in which they occur as well as the date of first use and the etymology where possible. These typically require many volumes, and yet not more so than the unabridged dictionaries of many languages.

Bilingual dictionaries and glossaries precede modern English and were in use in the earliest written English. The first monolingual dictionary was:*[30]

- [Robert Cawdrey](#): *Table Alphabeticall*, 1604

which was followed by a larger one,

- [Edward Phillips](#): *A New World of English Words*, 1658
- [Nathaniel Bailey](#): *An Universal Etymological English Dictionary*, 1721

These dictionaries whetted the interest of the English-speaking public in greater and more prescriptive dictionaries until [Samuel Johnson](#) published a grand design for such a one:

- [Samuel Johnson](#): *Plan of a Dictionary of the English Language*, 1747

which would imitate the dictionary being produced by the French Academy. He had no problem acquiring the funding, but not as a prescriptive dictionary. This was to be a grand comprehensive dictionary of all English words at any period:

- Samuel Johnson: *A Dictionary of the English Language*, 1755

By 1858, the need for an update resulted in the first planning for a new comprehensive dictionary to document standard English, a term coined at that time by the planning committee.*[31] The dictionary, known as the *Oxford English Dictionary*, published its first fascicle in 1884. It attracted significant contributions from some singular minds, such as William Chester Minor, a former army surgeon who had become criminally insane and made most of his contributions while incarcerated. Whether the OED is the long-desired standard English Dictionary is debatable, but its authority is taken seriously by the entire English-speaking world. Its staff is currently working on a third edition.

French Surviving dictionaries are a century earlier than their grammars. The Académie française founded in 1635 was given the obligation of producing a standard dictionary. Some early dictionaries are:

- Louis Cruse, alias Garbin: *Dictionnaire latin-françois*, 1487
- Robert Estienne, alias Robertus Stephanus: *Dictionnaire françois–latin*, 1539
- Maurice de la Porte: *Epitheta*, 1571
- Jean Nicot: *Thresor de la langue fracoyse, tant ancienne que moderne*, 1606
- Pierre Richelet: *Dictionnaire françois contenant les mots et les choses*, 1680
- Académie française: *Dictionnaire de l' Académie française*, 1694 annis.

German

High German dictionaries began in the 16th century and were at first multi-lingual. They were preceded by glossaries of German words and phrases on various specialized topics. Finally interest in developing a vernacular German grew to the point where Maaler could publish a work called by Jacob Grimm “the first truly German dictionary”:[32]

- Joshua Maaler: *Die Teutsche Spraach: Dictionarium Germanico-latinum novum*, 1561

It was followed along similar lines by

- Georg Heinisch: *Teütsche Sprache und Weißheit*, 1616

After numerous dictionaries and glossaries of a less than comprehensive nature came a *thesaurus* that attempted to include all German:

- Kaspar Stieler: *Der Teutschen Sprache Stammbaum und Fortwachs oder Teutschen Sprachschatz*, 1691

and finally the first codification of written German:*[33]

- Johann Christoph Adelung: *Versuch eines vollständigen grammatisch-kritischen Wörterbuches Der Hochdeutschen Mundart*, 1774–1786

Schiller called Adelung an *Orakel* and Wieland is said to have nailed a copy to his desk.

Italian In the early 15th century a number of glossaries appeared, such as that of Lucillo Minerbi on Boccaccio in 1535, and those of Fabrizio Luna on Ariosto, Petrarca, Boccaccio and Dante in 1536. In the mid-16th the dictionaries began, as listed below. In 1582 the first language academy was formed, called Accademia della Crusca, “bran academy”, which sifted language like grain. Once formed, its publications were standard-setting.*[34]

Monolingual

- Alberto Accarisio: *Vocabolario et grammatica con l'orthographia della lingua volgare*, 1543
- Francesco Alunno: *Le ricchezze della lingua volgare*, 1543

- Francesco Alunno: *La fabbrica del mondo*, 1548
- Giacomo Pergamini: *Il memoriale della lingua italiana*, 1602
- Accademia della Crusca: *Vocabolario degli Accademici della Crusca*, 1612

Italian / French

- Nathanael Duez : *Dittionario italiano e francese/Dictionnaire italien et François*, Leiden, 1559–1560
- Gabriel Pannonius: *Petit vocabulaire en langue françoise et italienne*, Lyon, 1578
- Jean Antoine Fenice : *Dictionnaire françois et italien*, Paris, 1584

Italian / English

- John Florio: *A Worlde of Words*, London, 1598
- John Florio: *Queen Anna's New World of Words*, London, 1611

Italian / Spanish

- Cristóbal de las Casas: *Vocabulario de las dos lenguas toscana y castellana*, Sevilla, 1570
- Lorenzo Franciosini: *Vocabulario italiano e spagnolo/ Vocabulario español e italiano*, Roma, 1620.

Spanish The first Spanish dictionaries in the 15th century were Latin-Spanish/Spanish-Latin, followed by monolingual Spanish. In 1713 the Real Academia Española, “Royal Spanish Academy,” was founded to set standards. It published an official dictionary, 1726–1739.

- Alonzo de Palencia: *El universal vocabulario en latin y romance*, 1490
- Antonio de Nebrija: *Lexicon latino-hispanicum et hispanico-latinum*, 1492
- Sebastián de Covarrubias Orozco: *Tesoro de la lengua castellana o española*, 1611
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71.8 External links

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- False dilemma** *Source:* http://en.wikipedia.org/wiki/False_dilemma?oldid=665359544 *Contributors:* Damian Yerrick, The Cunctator, Lee Daniel Crocker, Bryan Derksen, Tarquin, Ed Poor, Andre Engels, Fubar Obfusco, Chris Q, Mrwojo, Michael Hardy, Dcljr, Arthur3030, Ooooooooo, LittleDan, Sir Paul, Aragorn2, Cherkash, Timwi, Dcoetzee, Doradus, Greenrd, DJ Clayworth, Furrykef, Itai, ZeWrestler, Mrdice, Nurg, Tobias Bergemann, Giftlite, Philwiki, Karn, Taak, Gyrofrog, Jonathan Grynspan, Gdr, Noe, Beland, Kevin B12, Histron, Kmweber, Pohl, Ensiriff, KeyStroke, Rich Farmbrough, Dave Souza, Murtasa, Dbachmann, Borisblue, Ashley Pomeroy, TheCoffee, Sk4p, Mindmatrix, Daira Hopwood, Oldie~enwiki, Thegerm, BD2412, Bikeable, Mendaliv, Sjakalle, Nightscream, Hibernantears, Afterwriting, Dinosaurdarrell, SchuminWeb, Dullfig, Coach Z Ale, Revolving Bugbear, Riki, OpenToppedBus, Theo Pardilla, YurikBot, RobotE, Hairy Dude, Martnik, Red Slash, EDM, Sillybilly, DE, Thane, Rick Norwood, Kvn8907, Korny O'Near, Bucketsof, Robertbyrne, Eurosong, Lt-wiki-bot, Arthur Rubin, Dark Tichondrias, Jack Upland, PurplePlatypus, SmackBot, Reedy, Eriol Ancalagon, Jasy jaterne, McGeddon, Bomac, Midway, Eskimbot, Ohnoitsjamie, Hraefen, Thumperward, Moshe Constantine Hassan Al-Silverburg, Scwlong, Frap, Hippo43, Steven X, Pwjb, Hymenclock, MEJ119, Louisng114, DMacks, Andeggs, Marcus Brute, Curly Turkey, Rabidwolfe, Gilgunn2003, Nolte, Nicubunu, Tim Q. Wells, Grumpyyoungman01, Michaelbusch, Sam Li, Tawkerbot2, NE Ent, Penbat, Gregbard, Mattbuck, Benzi455, Christian75, Teratornis, Synetech, Letranova, Thijs!bot, 271828182, Tkay, Fury H, John254, Gligeti, Heroeswithmetaphors, MostExcellentTheophilus, CZeke, Ais523, Alphachimpbot, MdZ, Skywatcher68, Wizymon, Unused0029, Exerda, Ged fi, Logolego, Caesarjbsquitti, Stoneice02, LookingGlass, Scaro, StulsCool, Masamunemaniac, ThomasNichols, 83d40m, Phirazo, Merzul, Chasmatazz, Jdechambeau, VolkovBot, ABF, Orthologist, Dindon~enwiki, Sean D Martin, Philogo, Davin, Truthibuster, Jame-lan, StarManta, Lova Falk, Seresin, Africangenesis, Topher385, A boardley, Yitscar, Bee Cliff River Slob, Twinsday, ClueBot, Summer-WithMorons, Methychroma, Joaquín Martínez, Wildspell, Excirial, Conical Johnson, CPGACoast, Life of Riley, XLinkBot, Mitch Ames, 68Kustom, Addbot, Jafeluv, Jpjensvold, Yobot, Ojay123, Triquetra, AnomieBOT, Piano non troppo, E235, Clecsoft, Abce2, Anime Ad-dict AA, Logicchecker, SassoBot, Jack Daniel Adams, Machine Elf 1735, C.Heward, Zachary Klaas, FormerIP, Fahd09, Philocentric, Aoidh, TheGrimReaper NS, Bolaurent, EmausBot, Ajraddatz, 8digits, Ashiva2010, Tederose1943, Quellist Novice, Ihardlythinkso, ClueBot NG, VictorVVV, JohnsonL623, Frietjes, Masssly, Helpful Pixie Bot, HAGADAG, Jeraphine Gryphon, Northamerica1000, Badon, GlaedrH, JoeyHous, Mediran, Cup o' Java, SparxDragon, Dexbot, Ranze, IndianCamp, PokeZelda64, JaconaFrere, Birdo17, Fightclub-doll, Ihaveacatonmydesk, The pretty good Gatsby, Apolanco115 and Anonymous: 213
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- Begging the question** *Source:* http://en.wikipedia.org/wiki/Begging_the_question?oldid=660274425 *Contributors:* Damian Yerrick, AxelBoldt, Bryan Derksen, -- April, Andre Engels, Arvindn, PierreAbbat, David spector, Heron, Montrealais, R Lowry, Mrwojo, Frecklefoot, Michael Hardy, Booyabazooka, DopefishJustin, Rp, Wapcaplet, LittleDan, Cyan, UserGoogol, Cadr, Evercat, John K, Dcoetzee, Paul Stansifer, Markhurd, Talkingtoaj, Lbsterling, Maximus Rex, Furrykef, Corey, Wetman, Banno, Mrdice, Catskul, MrJones, Sdedeo, Benwing, Vespriano, Altenmann, Postdlf, Yacht, Humus sapiens, Brw12, Andrew Levine, Moink, Victor, Wereon, Carlj7, Xanzzibar, Alan Liefing, McDutchie, Psb777, Decumanus, Dbenbenn, Achurch, Beefman, Curps, Eequor, Antandrus, CSTAR, Rdsmith4, OwenBlacker, Ukexpat, Karl Dickman, Lacrimosus, Eep2, Shahab, Spiffy sperry, Sparky the Seventh Chaos, Jiy, RTCearly, Rich Farmbrough, Cacycle, Florian Blaschke, Silence, Kzsl, Luxdormiens, Paul August, Gronky, Rannpháirtí anaithnid (old), CanisRufus, Mr. Billion, Frankieist, Kaveh, Utopianfiat, Wipe, Timl, Chbarts, Ariadne55, Jumbuck, ABCD, Ashley Pomeroy, Yamla, Calton, Yummifruitbat, MoraSique, Huerlisi, BDD, Nightstallion, Kazvorpai, Kznf, Oleg Alexandrov, Mindmatrix, Jacobulus, Kzollman, Niqueco, Gyrae, Isnow, Eras-mus, Simpy, Teemu Leisti, Gerbrant, Graham87, Offtherails, Jshadias, Rjwilmsi, ExDeus, Strait, ErikHaugen, Pearlg, GeorgeBills, ColinJF, FlaBot, VKokielov, Helpful Dave, Jamesfisher, Stefanbojark, DVdm, BlueJaeger, YurikBot, HairY Dude, RussBot, Red Slash, Hede2000, KSmrq, Stephenb, Wimt, DragonHawk, Atfyfe, Ethan, Joncolvin, Ryan Heuser, Sylvain1972, Lexicon, Moe Epsilon, Roy Brumback, BOT-Superzerocool, Tomisti, Newagelink, Closedmouth, Petri Krohn, Shawnc, Smurrayinchester, MagneticFlux, PurplePlatypus, Moomoomoo, Mebden, Didymos-enwiki, Samwilson, Btipling, Mhardcastle, Edward.dumoulin, MartinGugino, SmackBot, Lestrade, Reedy, McGeddon, Rrius, Tracy Hall, Stifle, Teimu.tm, BiT, Flamarande, Sectryan, Srnc, MediaMangler, Kmarinas86, Shaggorama, Oli Filth, G.dallorto, Yanksox, Stedder, Abaharaki, NYKevin, Jahiegel, Chlewbob, Hippo43, Kittybrewster, Blueboar, GuildNavigator84, Ianmacm, Richard001, DylanW, Peteforsyth, Saibet, Andeggs, Marcus Brute, Jacyscott, The undertow, Lambiam, Esrever, Nishkid64, JackLumber, BurnDownBabyon, Loodog, Aroundthewayboy, Tkktk, CredoFromStart, Timothy, J Crow, Grumpyyoungman01, Optakeover, Anon1127, Pjrm, Iridescent, AmberRobot, JHP, Easwaran, Sam Li, Freelance Intellectual, BrOnXbOmBr21, ChrisCork, Croctotheface, Wolfdog, CmdrObot, CKozeluh, Janbyer, Penbat, Gregbard, Blaisorblade, Srs51, Ssilvers, NMChico24, Thijs!bot, Epr123, Mbell, 271828182, Mrjinx, Nslsmith, PaulHeggarty, EmileNoldeSinclair, Yonatan, Emeraldcityserendipity, EarthPerson, L0b0t, JAnDbot, A. Smith, Sonicsuns, Roccondil, Dcooper, Xeno, Jorgbrown, Christopher Cooper, Rthorpe, ThoHug, Objectivesea, Ace42, MartinBot, FlieGerFaUstMe262, MeteorMaker, Leoandrei, Davesf, J.delanoy, Feis-Kontrol, Apachegila, Spainhower, Trumpet marietta 45750, NewEnglandYankee, Mike-whiten, C1010, Gr8white, STBotD, DorganBot, DMCer, Darkfrog24, AndrewTJ31, Echosmoke, Pierson's Puppeteer, Rokus01, Philip Trueman, Badcop666, DrSlony, TXiKiBoT, Deleet, Gandoman, Reibot, Zachary jacobson, Qxz, Zmod101, Trevor Wennblom, Steven J. Anderson, Redddogg, Gekritzl, Martin451, Hamitr, SheffieldSteel, Sikvod00, Alejandra Grimaldo Diaz, GlassFET, JustaHulk, The Realms of Gold, EmxBot, Murkee, AdRock, SieBot, Demong, TJRC, LungZeno, God Emperor, Lhuman, X-Fi6, Jupiter9, Monkination, OsamaBinLogin, EnOreg, Jef pearlmn, Avnjay, Hello71, Khvalamde, IdreamofJeanie, Plookalakalaka, R00m c, Mr. Granger, Twinsday, Morninj, ClueBot, SchUsseln, Leecharleswalker, Tanglewood4, Gregcaletta, Drmies, Davescoven, Elikakohen, Grayme, Excirial, Aaronfledge17, Robbie098, PixelBot, Alderre, Mastameta, Spirals31, TheRedPenOfDoom, Norandav, Editor2020, Alastair Carnegie, DumZiBoT, BarretB, Muspilli, WikHead, Badgernet, Jbeans, Wiki-Dao, Thatguyflint, Coffee joe, Addbot, Logician, Movingboxes, Leszek Jańczuk, Ryft, Philomusica, Gzhanstong, Lindert, Jim10701, Bid2me, Weaseloid, Chaintan, Lucas-bot, Yobot, Senator Palpatine, Palamabron, AnomieBOT, WorldAsWill, Quispian, Ninahexan, Onesius, LilHelpa, Mononomic, AV3000, Ute in DC, RibotBOT, Logicchecker, Ammonio, Ricardiana, FrescoBot, Paine Ellsworth, Mu Mind, Logic523, WickedSideburns, Patronanejo, Tavernsenses, Dland2000, Machine Elf 1735, Airborne84, JKDw, Elockid, Florescent, ItsZippy, Gulbenk, Scoobertjoo, Duoduoduo, Sgravn, MisterJayEm, LeCornichon, Jowa fan, 达伟, EmausBot, John of Reading, Finandrhi, John Cline, 'O ołotopcz, Jarawara, Alpha Quadrant (alt), Cobaltcigs, Gartay225, Redd Woods, פרינצי, ClueBot NG, Jack

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- **Black-and-white dualism** *Source:* http://en.wikipedia.org/wiki/Black-and-white_dualism?oldid=663608116 *Contributors:* Chrism, Dbachmann, Jeodesic, Crystallized, Smoggyrob, Arthur Rubin, SmackBot, Thorseth, Yopie, Thumperward, Vanished User 0001, Kcatz, B7T, Propaniac, R'n'B, DJScrawl, Wikiisawesome, Martarius, ClueBot, Niceguyedc, Editor2020, Ar2332, DrOxacropehes, Cristiklein, McWomble, Blanche of King's Lynn, Yachtsman1, FrescoBot, Girlwithgreeneyes, Aabelaros, Peter Karlsen, IgnorantArmies and Anonymous: 23
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- **Loaded question** *Source:* http://en.wikipedia.org/wiki/Loaded_question?oldid=665481105 *Contributors:* Tarquin, Sir Paul, Arteitle, Dcoetzee, Ww, Radgeek, Talkingtoaj, Tschild, Furrykef, Populus, Wiwaxia, Mrdice, Altenmann, Justanyone, Tobias Bergemann, Taak, Chameleon, Mckaysalisbury, Piotrus, Kusunose, Nick-in-South-Africa, DragonflySixtyseven, Uly, Karl Dickman, Calwatch, Guppyfin-soup, Ta bu shi da yu, Rich Farmbrough, Silence, Gronky, Art LaPella, Euyyn, Jonathan Drain, Lore Sjöberg, Viriditas, La goutte de pluie, Cspurrier, Kbir1, Brainy J, Sam Korn, Officiallyover, Free Bear, Babajobu, Ashley Pomeroy, Mailer diablo, Schapel, Nightstallion, AlexMyltsev, Stemonitis, Miss Madeline, Tabletop, Force10, BD2412, Jshadias, Sjö, Rjwilmsi, Wildyoda, Leithp, Harmil, Pathoschild, Jondor, Tardis, Common Man, Stefanbojark, Wasted Time R, YurikBot, Hairy Dude, RussBot, Red Slash, Bovineone, Joncolvin, KissL, Grafen, Keith aquino, Eurosong, Bomkia-enwiki, StuRat, Lt-wiki-bot, TheMadBaron, Thnidu, JQF, ZoFreX, Ybbor, Groyolo, SmackBot, Kellen, Reedy, Eskimbot, BiT, Geoff B, The Rhymesmith, Nerrolken, Goaty, Boothman, Metamagician3000, Andeggs, BrotherFlounder, USSVagrant, Robofish, Antonielly, Grumpyyoungman01, TheHYPO, Eoseth, Spebudmak, Colonel Warden, JHP, DougHill, Father Ignatius, Penbat, Gregbard, Cydebot, Tenbergen, AlaiBot, Thijs!bot, D4g0thur, Tocharianne, Kingnixon, Oreo Priest, AntiVandalBot, Uvaphdman, Defaultdotxbe, Waerloeg, Clan-destine, Opertinicy, Legitimus, Dreaded Walrus, Barek, Jmartinson, Destynova, JaGa, DGG, S3000, Jackson Peebles, Dennisthe2, Akronym, DandyDan2007, P4k, Trumpet marietta 45750, Pyrospirit, Foofighter20x, Dorftrottel, MichaelProcton, Davin, Jamelan, Graymornings, Wassamatta, Lova Falk, SimonTrew, Cosmo0, ClueBot, Niceguyedc, Trivialist, Rockfang, SchreiberBike, GeeAlice, Joghuttol, AnnaFrance, Thiefalt, Weaseloid, Legobot, Yobot, AnomieBOT, Fahadsadah, Omnipaedista, Logicchecker, Mitranim, Peteinterpol, Machine Elf 1735, JKDw, Momergil, MeUser42, ArtistScientist, Dryranm, Dejackman, EmausBot, ZéroBot, Morgan Hauser, Lothar Klaic, Alchemy Heels I, ClueBot NG, Widr, MerllwBot, Helpful Pixie Bot, Popcornduff, Whitmerj, Meabandit, JYBot, BayShrimp, Ceosad, Ihaveacatonmydesk and Anonymous: 105
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- **Logical connective** *Source:* http://en.wikipedia.org/wiki/Logical_connective?oldid=662414656 *Contributors:* AxelBoldt, Rmhermen, Christian List, Stevertigo, Michael Hardy, Dominus, Justin Johnson, TakuyaMurata, Ahoerstemeier, AugPi, Andres, Dysprosia, Hyacinth, Robbot, Sbisolo, Ojigiri-enwiki, Filemon, Snobot, Giftlite, DavidCary, Risk one, Siroxo, Boothinator, Wiki Wikardo, Kaldari, Sam Hoecevar, Indolering, Abdull, Rfl, Jiy, Guanabot, Paul August, ZeroOne, Elwikipedista-enwiki, Charm, Chalst, Shanes, EmilJ, Spoon!, Kappa, SurrealWarrior, Suruena, Bookandcoffee, Oleg Alexandrov, Joriki, Mindmatrix, Graham87, BD2412, Kbdank71, Hiding, Fresheneesz, Chobot, YurikBot, RussBot, Gaius Cornelius, Rick Norwood, Trovatore, Cullinane, Arthur Rubin, Masquatto, Nahaj, SmackBot, Incnis Mrsi, InvictaHOG, JRSP, Chris the speller, Bluebot, Tolmaion, Jon Awbrey, Lambiam, Nishkid64, Bjankuloski06en-enwiki, JHunterJ, RichardF, JRSpriggs, CRGreathouse, CBM, Gregbard, Cydebot, Julian Mendez, DumbBOT, Letranova, Jdm64, Danger, DuncanHill, David Epstein, Nleclerc-enwiki, R'n'B, Christian424, GoatGuy, Darkvix, Arcanedude91, Policron, VolkovBot, Jeff G., TXiKiBoT, Anonymous Dissident, Philogo, Dmcq, Sergio01, SieBot, Gerakibot, Yintan, Skippydo, Huku-chan, Denisarona, Francvs, ClueBot, Justin W Smith, Ktr101, Watchduck, ZuluPapa5, Hans Adler, MilesAgain, Hugo Herbelin, Dj3, Johnuniq, Addbot, Mortense, Melab-1, Download, SpBot, Peti610botH, Loupeter, Yobot, Amirobot, AnomieBOT, Racconish, ArthurBot, Xqbot, El Caro, Luis Felipe Schenone, Entropeter, FrescoBot, Citation bot 1, RandomDSdevel, Pinethicket, Timboat, Der Elbenkoenig, Dude1818, Orenburg1, Hriber, Greenfernglade, Ipersite, BAICAN XXX, נר, י, Seabuo, Mentibot, Tijfo098, Mhiji, ClueBot NG, Thebombzen, Masssly, Helpful Pixie Bot, Owarihajimari, Weaktofu, Hanlon1755, Fuebar, Tommor7835, Everymorning, Star767, Dai Pritchard, Sk8rcoolkat6969, Student342 and Anonymous: 87
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- Mu (negative)** *Source:* [http://en.wikipedia.org/wiki/Mu_\(negative\)?oldid=634643608](http://en.wikipedia.org/wiki/Mu_(negative)?oldid=634643608) *Contributors:* Damian Yerrick, Mav, Bryan Derksen, Wwwwolf, Stevenj, Jpatokal, Error, Habj, Furrykef, AnonMoos, Benwing, Decumanus, BenFrantzDale, Eequor, Chameleon, Dash, Mckaysalisbury, Andycjp, Latitudinarian, Uly, FoeNyx, Acad Ronin, ChrisRuvolo, Discospinster, Rich Farmbrough, FT2, Zanderredux, Laurascudder, Spoon!, JRM, BrokenSegue, Xoselg, GRider, Eleland, CyberSkull, Keenan Pepper, Minority Report, Omphaloscope, Instantnood, Siafu, CWH, Apokrif, AtomAnt, Alan Canon, Tydaj, Marudubshinki, Deltabeignet, Quiddity, Husky, FlaBot, Le Anh-Huy, Silversmith, Chobot, Bgwhite, Pigman, Shaddack, Sherdwen, Ninly, BorgQueen, Smurrayinchester, HansM, Mabisa, Pentasyllabic, Finell, Veinor, SmackBot, Melchoir, PizzaMargherita, Eskimbot, Sam Pointon, Bozena, Roscelese, Clconway, Colonies Chris, Khoikhoi, LD-Han, Obvious, Avuasku, Snow cat, Loadmaster, Chickencha, Keahapana, Colonel Warden, Neelix, Vanished user fj0390923roktg4tlkm2pkd, Cydebot, Gleemonex, Macropneuma, Shirulashem, Treed, MichaelMaggs, AntiVandalBot, Waerloeg, Mujokan, Magioladitis, Roy.crabtree@gmail.com, Walkeraj, Yunfeng, R'n'B, Davesf, Huzzlet the bot, Mind mel, Jon Ascton, DjScrawl, STBotD, Dchaley, Metal.lunchbox, Liverwort, Flyte35, Henriborno, StaticGull, ClueBot, Hongthay, Boing! said Zebedee, No such user, Kitsunegami, Kanguole, Tnxman307, Schreiber-Bike, Brilliant Pebble, DumZiBoT, WikiDao, MystBot, Monfornot, Whooym, Addbot, OBloodyHell, CarsracBot, AgadaUrbanit, Tassede-the, Lightbot, Yobot, Tiibiidi, AnomieBOT, Rjanag, Toothbrush1843, FrescoBot, Machine Elf 1735, Standardfact, Lotje, Tbbotch, EmausBot, ZéroBot, Nancyhector, 'Ο οϊστρος, Helpfuls, ClueBot NG, Tdhsmith, Yszysn, MerllwBot, Helpful Pixie Bot, 4368a, BG19bot, CitationCleanerBot, Techchicken, Joshua Jonathan, Quartz Lee, Inanygivenhole and Anonymous: 85
- Mutual exclusivity** *Source:* http://en.wikipedia.org/wiki/Mutual_exclusivity?oldid=664338942 *Contributors:* Vicki Rosenzweig, Zundark, Michael Hardy, Kku, Gaurav, Docu, Quickbeam, Charles Matthews, Dysprosia, Tobias Bergemann, Giftlite, Neilc, Anthony Appleyard, Ricky81682, Angelic Wraith, Oleg Alexandrov, Bluemoose, Yuriybrisk, Qwertyus, Grammarbot, Concordia, ACrush, Godlord2, Roboto de Ajvol, Capitalist, Sardanaphalus, SmackBot, NYKevin, Cybercobra, Rory096, Wvbailey, Levineps, Courcelles, Gregbard, Yaris678, Mazzid, Mattisse, Neil916, Daniel.kho, Richard n, Martinkuney, Jotate, Anarchia, Rettetast, The Anonymous One, AstroHurricane001, Neon white, AntiSpamBot, Alnokta, Lights, Epton291, Technopat, Salvar, Burntsauce, SieBot, Puffin1234567, Leranedo, The Thing That Should Not Be, HexaChord, Addbot, Aykantsepel, Ccacsms, Darth Cracker, SpBot, Legobot, Fraggie81, AnomieBOT, Iamatom, Xqbot, Koolkyle123, Bsquare4ac, Duoduoduo, Sideways713, Keegscee, Czhanacek, Bento00, Tesseract2, Furtheraptitudes, ZéroBot, Chharvey, Δ, ClueBot NG, Primergrey, Congressser, Karl 334, Vvlaura, Kmrghu61, John Aiello, Alarty, SDG23uas, Vorapre, Amitakiwate and Anonymous: 118
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- New Zealand citizens-initiated referendum, 2009** *Source:* http://en.wikipedia.org/wiki/New_Zealand_citizens-initiated_referendum%2C_2009?oldid=626150213 *Contributors:* Gabbe, Kaihsu, Nurg, Alan Liefing, Everyking, Gadfium, Ben Arnold, Hajenso, Nightstallion, Zntrip, Renamed user 8262690166681, XLerate, LJ Holden, Lcmortensen, SmackBot, F, Ohconfucius, Fanx, DougHill, Cydebot, Mattlore, Dave.moskovitz, Rogueblf, The Professor, Ingolfson, CommonsDelinker, Hugo999, Rizalninoynapoleon, Adabow, Blamed, Drkshadowmaster, Pakaraki, Ethelh, Kaiwhakahaere, CountryBot, EryZ, Alarics, ChrisTParkin, Schwede66, EmausBot, John of Reading, Frietjes, Ridcully Jack, TheGrayBaker, Ceosad and Anonymous: 13
- Open-question argument** *Source:* http://en.wikipedia.org/wiki/Open-question_argument?oldid=646018550 *Contributors:* Anthony Appleyard, Mandarax, Rjwilmsi, Gyre, SmackBot, Tisthammerw, Cybercobra, Byelf2007, Dicklyon, BananaFiend, Gregbard, Peterdjones, GodRousingDogPipes, Spontini, Heyitspeter, MishaPan, TXiKiBoT, Jojalozzo, Vanished user oij8h435jweih3, Kai-Hendrik, Addbot, Haruth, J. Johnson, Yobot, TaBOT-zerem, AnomieBOT, LilHelpa, FrescoBot, DrilBot, Tesseract2, Helpful Pixie Bot, Lawandecnomics1, Rfarrell630, Fraulein451, Blchadick and Anonymous: 33

- **Performative contradiction** *Source:* http://en.wikipedia.org/wiki/Performative_contradiction?oldid=630070556 *Contributors:* Bryan Derksen, CesarB, Bender235, Gurch, Conscious, Bluebot, Byelf2007, Vanished user sojweiorj34i4f, Gregbard, Peterdjones, Skomorokh, Anarchia, Onixz100, Omnipaedista, MeUser42, Mcc1789, Kyoakoa and Anonymous: 16
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- **Polysyllogism** *Source:* <http://en.wikipedia.org/wiki/Polysyllogism?oldid=589155122> *Contributors:* Silverfish, Charles Matthews, Taak, Kwamikagami, TheParanoidOne, RuM, Alexb@cut-the-knot.com, SmackBot, NickShaforostoff, Lambiam, Rigadoun, CBM, Neelix, Gregbard, Cydebot, Deflective, MER-C, Marks2222, Dorftrottel, TXiKiBoT, Addbot, Icanhasedit, Luckas-bot, AdjustShift, Erik9bot, Tryphaena, Shanghainese.ua, 478jjjz, ZéroBot, Helpful Pixie Bot, BG19bot, Brad7777, Jochen Burghardt, Begadkepat and Anonymous: 8
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