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Divination based on the movements of the stars This article is about the divinatory pseudoscience and is not to be confused with Astronomy, the scientific study of celestial objects. For other uses, see Astrology (disambiguation). Astronomy, the scientific study of celestial objects.
Classical Zodiac Traditions, types, and systems Astrological organizations Traditions Babylonian Chinese Hellenistic Hindu Islamic Jewish Tibetan Western Branches Natal Electional Horary Medical Financial Locational Psychological Meteorological Astrological Signs Aries Taurus Gemini Cancer Leo Virgo Libra
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Thelema Theosophy Traditionalism Rites Astral projection Body of light Divination Exorcism Initiation Invocation Exorcism Initiation Rite of passage Ritual purification Exorcism Initiation Invocation Exorcism Initiation Initiation Invocation Exorcism Initiation Invocation Exorcism Initiation Invocation Exorcism Initiation Initiation Invocation Exorcism Initiation Invocation Exorcism Initiation Initiation Invocation Exorcism Initiation Invocation Initiation Initiation
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range of divinatory practices, recognized as pseudoscientific since the 18th century, [1][2] that propose that information about human affairs and terrestrial events may be discerned by studying the apparent positions of celestial objects. [3][4][5][6][7] Different cultures have employed forms of astrology since at least the 2nd millennium BCE, these
practices having originated in calendrical systems used to predict seasonal shifts and to interpret celestial cycles as signs of divine communications. [8] Most, if not all, cultures have attached importance to what they observed in the sky, and some—such as the Hindus, Chinese, and the Maya—developed elaborate systems for predicting terrestrial
events from celestial observations. Western astrology, one of the oldest astrology, one of the oldest astrology is often associated with systems of
horoscopes that purport to explain aspects of a person's personality and predict significant events in their lives based on the positions of celestial objects; the majority of professional astrologers rely on such systems. [9] Throughout its history, astrology has had its detractors, competitors and skeptics who opposed it for moral, religious, political, and
empirical reasons.[10][11][12] Nonetheless, prior to the Enlightenment, astrology was generally considered a scholarly tradition and was common in learned circles and is mentioned in various works of literature, from Dante Alighieri
and Geoffrey Chaucer to William Shakespeare, Lope de Vega, and Pedro Calderón de la Barca. During the Enlightenment, however, astrology lost its status as an area of legitimate scholarly pursuit.[14][15] Following the end of the 19th century and the wide-scale adoption of the scientific method, researchers have successfully challenged astrology on
both theoretical[16][17] and experimental grounds,[18][19] and have shown it to have no scientific validity or explanatory power.[20] Astrology thus lost its academic and theoretical standing in the western world, and common belief in it largely declined, until a continuing resurgence starting in the 1960s.[21] Marcantonio Raimondi engraving, 15th
century The word astrology comes from the early Latin word astrologia, [22] which derives from the Greek ἀστρολογία—from ἄστρον astron ("star") and -λογία -logia, ("study of"—"account of the stars"). The word entered the English language via Latin and medieval French, and its use overlapped considerably with that of astronomy (derived from the
Latin astronomia). By the 17th century, astronomy became established as the scientific term, with astrology referring to divinations and schemes for predicting human affairs.[23] Main article: History of astrology from a
medical perspective. From a 15th-century Welsh manuscript Many cultures have attached importance to astronomical events, and the Indians, Chinese, and Maya developed elaborate systems for predicting terrestrial events from celestial observations. A form of astrology was practised in the Old Babylonian period of Mesopotamia, c. 1800 BCE.[24]
[8] Vedānga Jyotişa is one of earliest known Hindu texts on astronomy and astrology (Jyotisha). The text is dated between 1400 BCE to final centuries BCE by various scholars according to astronomy and astrology after 332 BCE mixed
Babylonian astrology with Egyptian Decanic astrology in Alexandria, creating horoscopic astrology was taken up by Islamic
scholars, and Hellenistic texts were translated into Arabic and Persian. In the 12th century, Arabic texts were imported to Europe and translated into Latin. Major astronomers including Tycho Brahe, Johannes Kepler and Galileo practised as court astrological references appear in literature in the works of poets such as Dante Alighieri
and Geoffrey Chaucer, and of playwrights such as Christopher Marlowe and William Shakespeare. Throughout most of its history, astrology was considered a scholarly tradition. It was accepted in political and academic contexts, and was connected with other studies, such as astronomy, alchemy, meteorology, and medicine.[13] At the end of the 17th
century, new scientific concepts in astronomy and physics (such as heliocentrism and Newtonian mechanics) called astrology thus lost its academic and theoretical standing, and common belief in astrology thus lost its academic and theoretical standing, and theoretical standing, and common belief in astrology thus lost its academic and theoretical standing, and common belief in astrology thus lost its academic and theoretical standing, and common belief in astrology thus lost its academic and theoretical standing.
broadest sense, is the search for meaning in the sky. [25] Early evidence for humans making conscious attempts to measure, record, and predict seasonal changes by reference to astronomical cycles, appears as markings on bones and cave walls, which show that lunar cycles were being noted as early as 25,000 years ago. [26] This was a first step
towards recording the Moon's influence upon tides and rivers, and towards organising a communal calendar. [26] Farmers addressed agricultural needs with increasing knowledge of the constellations that appear in the different seasons—and used the rising of particular star-groups to herald annual floods or seasonal activities. [27] By the 3rd
millennium BCE, civilisations had sophisticated awareness of celestial cycles, and may have oriented temples in alignment with heliacal risings of the stars. [28] Scattered evidence suggests that the oldest known astrological references are copies of texts made in the ancient world. The Venus tablet of Ammisaduqa is thought to have been compiled in
Babylon around 1700 BCE.[29] A scroll documenting an early use of electional astrology is doubtfully ascribed to the reign of the Sumerian ruler Gudea of Lagash (c. 2144 - 2124 BCE). This describes how the gods revealed to him in a dream the construction of a temple.[30] However, there are the construction of a temple.[30] However, t
is controversy about whether these were genuinely recorded at the time or merely ascribed to ancient rulers by posterity. The oldest undisputed evidence of the first dynasty of Babylon (1950-1651 BCE). This astrology had some parallels with
Hellenistic Greek (western) astrology, including the zodiac, a norming point near 9 degrees each).[31] The Babylonians viewed celestial events as possible signs rather than as causes of physical events.[31] The system of Chinese astrology was
elaborated during the Zhou dynasty (1046-256 BCE) and flourished during the Han dynasty (2nd century BCE to 2nd century BCE to 
principles of Chinese medicine and divination, astrology, and alchemy.[32] The ancient Arabs that inhabited the Arabian Peninsula before the advent of Islam used to profess a widespread belief in fatalism (kadar) alongside a fearful consideration for the sky and the stars, which they held to be ultimately responsible for every phenomena that occurs
on Earth and for the destiny of humankind.[33] Accordingly, they shaped their entire lives in accordance with their interpretations of astrology. The Hellenistic schools of philosophical skepticism criticized astrology, alongside all other beliefs.[34] Criticism of astrology by
academic skeptics such as Carneades, [10] Cicero, [35] and Favorinus; [36] Pyrrhonists such as Plotinus, [38] and favorinus; [37] and neoplatonists such as Plotinus, [38] has been preserved. Carneades argued that belief in fate denies free will and morality; that people born at different times can all die in the same accident or battle; and that contrary to
uniform influences from the stars, tribes and cultures are all different.[40] Cicero, in De Divinatione, leveled a critique of astrology that some modern philosopher of science Massimo Pigliucci, building on the work of the
historian of science, Damien Fernandez-Beanato, argues that Cicero outlined a "convincing distinction between astrology and astronomy that remains valid in the twenty-first century."[41] Cicero stated the twins objection (that with close birth times, personal outcomes can be very different), later developed by Augustine.[42] He argued that since the
other planets are much more distant from the Earth than the Moon, they could have only very tiny influence compared to the Moon's.[43] He also argued that if astrology explains everything about a person's fate, then it wrongly ignores the visible effect of inherited ability and parenting, changes in health worked by medicine, or the effects of the
weather on people. [44] The historian Stefano Rapisarda notes that it was absurd to imagine that stars and planets would affect human bodies in the same way as they affect the tides, and equally absurd that small motions
in the heavens cause large changes in people's fates. [36] Sextus Empiricus argued that it was absurd to link human attributes with myths about the signs of the zodiac, and wrote an entire book, Against the Astrologers (Πρὸς ἀστρολόγους, Pros astrologous), compiling arguments against astrology. Against the Astrologers was the fifth section of a
larger work arguing against philosophical and scientific inquiry in general, Against the Professors (Πρὸς μαθηματικούς, Pros mathematikous).[37] Plotinus, a neoplatonist, had a lasting interest in astrology could predict events on Earth.[46]
He argued that since the fixed stars are much more distant than the planets, it is laughable to imagine the planets to the zodiac. He also argues that the interpretation of the Moon's conjunction with a planet as good when the moon is full, but bad when the moon is waning, is clearly
wrong, as from the Moon's point of view, half of its surface is always in sunlight; and from the planet's point of view, waning should be better, as then the planet sees some light from the Moon, but when the Moon is full to us, it is dark, and therefore bad, on the side facing the planet in question. [39] Main article: Hellenistic astrology 1484 copy of first
page of Ptolemy's Tetrabiblos, translated into Latin by Plato of Tivoli In 525 BCE, Egypt was conquered by the Persians. The 1st century BCE Egyptian Dendera Zodiac shares two signs - the Balance and the Scorpion - with Mesopotamian astrology.[47] With the occupation by Alexander the Great in 332 BCE, Egypt became Hellenistic. The city of
Alexandria was founded by Alexander after the conquest, becoming the place where Babylonian astrology was mixed with Egyptian Decanic astrology to create Horoscopic astrology. This contained the Babylonian zodiac with its system of planetary exaltations, the triplicities of the signs and the importance of eclipses. It used the Egyptian concept of
dividing the zodiac into thirty-six decans of ten degrees each, with an emphasis on the rising decan, and the Greek system of planetary Gods, sign rulership and four elements. [48] 2nd century BCE texts predict positions of planets in zodiac signs at the time of the rising of certain decans, particularly Sothis. [49] The astrologer and astronomer Ptolemy
lived in Alexandria. Ptolemy's work the Tetrabiblos formed the basis of Western astrology, and, "...enjoyed almost the authority of a Bible among the astrological writers of a thousand years or more."[50] The conquest of Asia by Alexander the Greeks to ideas from Syria, Babylon, Persia and central Asia.[51] Around 280 BCE,
Berossus, a priest of Bel from Babylon, moved to the Greek island of Kos, teaching astrology, one using horoscopes to describe the past, present and future; the other, theurgic, emphasising the soul's ascent to the stars.[53] Greek influence played a crucial role
in the transmission of astrological theory to Rome. [54] The first definite reference to astrology in Rome comes from the orator Cato, who in 160 BCE warned farm overseers against consulting with Chaldeans, [55] who were described as Babylonian 'star-gazers'. [56] Among both Greeks and Romans, Babylonia (also known as Chaldean) became so
identified with astrology that 'Chaldean wisdom' became synonymous with divination using planets and stars.[57] The 2nd-century Roman poet and satirist Juvenal complains about the pervasive influence of Chaldeans, saying, "Still more trusted are the Chaldaeans; every word uttered by the astrologer they will believe has come from Hammon's
fountain."[58] One of the first astrologers to bring Hermetic astrology to Rome was Thrasyllus, astrologer, [59] though his predecessor Augustus had used astrology to help legitimise his Imperial rights.[60] Main article: Hindu astrology The main texts upon which classical
Indian astrology is based are early medieval composite work of 71 chapters, of which the first part (chapters 1-51) dates to the 7th to early 8th centuries and the second part (chapters 52-71) to the later 8th century. The Sārāvalī likewise dates
to around 800 CE.[61] English translations of these texts were published by N.N. Krishna Rau and V.B. Choudhari in 1963 and 1961, respectively. Main article: Astrology was taken up by Islamic scholars[62] following
the collapse of Alexandria to the Arabs in the 7th century, and the founding of the Abbasid empire in the 8th. The second Abbasid caliph, Al Mansur (754-775) founded the city of Baghdad to act as a centre of learning, and included in its design a library-translation centre known as Bayt al-Hikma 'House of Wisdom', which continued to receive
development from his heirs and was to provide a major impetus for Arabic-Persian translations of Hellenistic astrological texts. The early translators included Mashallah, who helped to elect the time for the foundation of Baghdad, [63] and Sahl ibn Bishr, (a.k.a. Zael), whose texts were directly influential upon later European astrological texts. The early translators included Mashallah, who helped to elect the time for the foundation of Baghdad, [63] and Sahl ibn Bishr, (a.k.a. Zael), whose texts were directly influential upon later European astrological texts.
Bonatti in the 13th century, and William Lilly in the 17th century. [64] Knowledge of Arabic texts started to become imported into Europe during the Latin translations of the Paradiso. See also: Christian views on astrology The medieval theologian
Isidore of Seville criticised the predictive part of astrology. In the seventh century, Isidore of Seville argued in his Etymologiae that astronomy describing the movements of the Sun, the Moon and the stars, while the other, making predictions, was theologically
erroneous.[65][66] The first astrological book published in Europe was the Liber Planets and Regions of the World"), which appeared between 1010 and 1027 AD, and may have been authored by Gerbert of Aurillac.[67] Ptolemy's second century AD Tetrabiblos was translated into Latin by Plato of Tivoli in
1138.[67] The Dominican theologian Thomas Aquinas followed Aristotle in proposing that God ruled the soul.[68] The thirteenth century mathematician Campanus of Novara is said to have devised a system of astrological houses that
divides the prime vertical into 'houses' of equal 30° arcs,[69] though the system was used earlier in the East.[70] The thirteenth century astronomer Guido Bonatti wrote a textbook, the Liber Astronomicus, a copy of which King Henry VII of England owned at the end of the fifteenth century.[69] In Paradiso, the final part of the Divine Comedy, the
Italian poet Dante Alighieri referred "in countless details"[71] to the astrological planets, though he adapted traditional astrology to suit his Christian viewpoint,[71] for example using astrology as essentially limited to the making of
predictions.[65][73][74] The influence of the stars was in turn divided into natural astrology, with supposedly predictable effects on people.[75][76] The fourteenth-century sceptic Nicole Oresme however included astronomy as a part of astrology in his Livre de
divinacions.[77] Oresme argued that current approaches to prediction of events such as plagues, wars, and weather were inappropriate, but that such prediction was a valid field of inquiry. However, he attacked the use of astrology to choose the timing of actions (so-called interrogation and election) as wholly false, and rejected the determination of
 human action by the stars on grounds of free will.[77][78] The friar Laurens Pignon (c. 1368-1449)[79] similarly rejected all forms of divination to the tradition carried by the Arab astronomer Albumasar (787-886) whose Introductorium in
Astronomiam and De Magnis Coniunctionibus argued the view that both individual actions and larger scale history are determined by the stars.[81] In the late 15th century, Giovanni Pico della Mirandola forcefully attacked astrology in Disputationes contra Astrologos, arguing that the heavens neither caused, nor heralded earthly events.[82] History are determined by the stars.[81] In the late 15th century, Giovanni Pico della Mirandola forcefully attacked astrology in Disputationes contra Astrologos, arguing that the heavens neither caused, nor heralded earthly events.
contemporary, Pietro Pomponazzi, a "rationalistic and critical thinker", was much more sanguine about astrology and critical of Pico's attack.[83] See also: Renaissance magic 'An Astrologer Casting a Horoscope' from Robert Fludd's Utriusque Cosmi Historia, 1617 Renaissance scholars commonly practised astrology. Gerolamo Cardano cast the
horoscope of king Edward VI of England, while John Dee was the personal astrologer to queen Elizabeth I of England. Catherine de Medici paid Michael Nostradamus in 1566 to verify the prediction of the death of her husband, king Henry II of France, made by her astrologer Lucus Gauricus. Major astronomers who practised as court astrologers
included Tycho Brahe in the royal court of Denmark, Johannes Kepler to the Habsburgs, Galileo Galilei to the Medici, and Giordano Bruno who was burnt at the stake for heresy in Rome in 1600.[84] The distinction between astronomy was not entirely clear. Advances in astronomy were often motivated by the desire to improve the
accuracy of astrology.[85] Kepler, for example, was driven by a belief in harmonies between Earthly and celestial affairs, yet he disparaged the activities of most astrological calculations, and almanacs interpreting celestial events for use in medicine and for choosing times to plant
pedagogical purposes, the supposed relationships between the signs of the planets, and the planets and signs.[88][89] While Hood's presentation was innovative, his astrological information was largely standard and was taken from Gerard Mercator's astrological disc made
in 1551, or a source used by Mercator.[90][91] Despite its popularity, Renaissance astrology had what historian Gabor Almasi calls "elite debate", exemplified by the polemical letters of Swiss physician Thomas Erastus who fought against astrology, calling it "vanity" and "superstition." Then around the time of the new star of 1572 and the comet of
1577 there began what Almasi calls an "extended epistemological reform" which began the process of excluding religion, astrology as a legitimate topic.[93] Middle-class Chicago women discuss spiritualism (1906). During
the Enlightenment, intellectual sympathy for astrology fell away, leaving only a popular following supported by cheap almanacs. [14][15] One English almanac compiler, Richard Saunders, followed the spirit of the age by printing a derisive Discourse on the Invalidity of Astrology, while in France Pierre Bayle's Dictionnaire of 1697 stated that the
subject was puerile.[14] The Anglo-Irish satirist Jonathan Swift ridiculed the Whig political astrologers (1647-1684), a trade, educational, and social organization, sought to unite London's often fractious astrologers in the task of revitalizing astrology. Following the
template of the popular "Feasts of Mathematicians" they endeavored to defend their art in the face of growing religious criticism. The Society hosted banquets, exchanged "instruments and manuscripts", proposed research projects, and funded the publication of sermons that depicted astrology as a legitimate biblical pursuit for Christians. They
commissioned sermons that argued Astrology was divine, Hebraic, and scripturally supported by Bible passages about the Magi and the sons of Seth. According to historian Michelle Pfeffer, "The society's public relations campaign ultimately failed." Modern historians have mostly neglected the Society of Astrologers in favor of the still extant Royal
Society (1660), even though both organizations initially had some of the same members. [94] Astrology saw a popular revival of spiritualism and—later, New Age philosophy, [95] and through the influence of mass media such as newspaper horoscopes. [96] Early in the 20th century the psychiatrist
Carl Jung developed some concepts concerning astrology, [97] which led to the development of psychological astrology, [98][99][100] Advocates have defined astrology systems share common roots in ancient philosophies that
influenced each other, many use methods that differ from those in the West. These include Hindu astrology (also known as "Indian astrology") and Chinese astrology, both of which have influenced the world's cultural history. Western astrology is a form of divination based on the construction of a con
horoscope for an exact moment, such as a person's birth.[103] It uses the tropical zodiac, which is aligned to the equinoctial bodies such as the Sun, Moon and planets, which are analysed by their movement through signs of the zodiac (twelve spatial
divisions of the ecliptic) and by their aspects (based on geometric angles) relative to one another. They are also considered by their placement in houses (twelve spatial divisions of the sky).[105] Astrology's modern representation in western popular media is usually reduced to sun sign astrology, which considers only the zodiac sign of the Sun at an
individual's date of birth, and represents only 1/12 of the total chart. [106] The horoscope visually expresses the set of relationships are between the seven 'planets', signifying tendencies such as war and love; the twelve signs of the zodiac; and the twelve houses. Each planet is in a
particular sign and a particular house at the chosen planet, when observed from the chosen planet (in 'trine') are in a harmonious relationship, but two planets 90° apart ('square') are in a conflicted
relationship.[108][109] Together these relationships and their interpretations are said to form "...the language of the heavens speaking to learned men."[107] Along with tarot divination, astrology is one of the core studies of Western esotericism, and as such has influenced systems of magical belief not only among Western esotericists and
Hermeticists, but also belief systems such as Wicca, which have borrowed from or been influenced by the Western esoteric tradition. Tanya Luhrmann has said that "all magicians know something about astrology," and refers to a table of correspondences in Starhawk's The Spiral Dance, organised by planet, as an example of the astrological lore
studied by magicians.[110] Main article: Hindu astrology Page from an Indian astrology as well.[111] Hindu natal astrology originated with Hellenistic astrology by the 3rd century BCE,[112][113] though incorporating the
Hindu lunar mansions.[114] The names of the signs (e.g. Greek 'Krios' for Aries, Hindi 'Kriya'), the planets (e.g. Greek 'Helios' for Sun, astrological Hindi 'apoklima' and 'sunapha' respectively) in Varaha Mihira's texts are considered
conclusive evidence of a Greek origin for Hindu astrology.[115] The Indian techniques may also have been augmented with some of the Babylonian techniques estrology has a close relation with Chinese philosophy (theory of the three harmonies: heaven, earth and man) and uses concepts such as yir
and yang, the Five phases, the 10 Celestial stems, the 12 Earthly Branches, and shichen (時辰 a form of timekeeping used for religious purposes). The early use of Chinese astrology was mainly confined to political astrology, the observation of unusual phenomena, identification of portents and the selection of auspicious days for events and decisions.
[117] The constellations of the Zodiac of western Asia and Europe were not used; instead the sky is divided into Three Enclosures (三垣 sān yuán), and Twenty-Eight Mansions (二十八宿 èrshíbā xiù) in twelve Ci (十二次).[118] The Chinese zodiac of twelve animal signs is said to represent twelve different types of personality. It is based on cycles of years
 lunar months, and two-hour periods of the day (the shichen). The zodiac traditionally begins with the sign of the Rat, and the cycle proceeds through 11 other animal signs: the Ox, Tiger, Rabbit, Dragon, Snake, Horse, Goat, Monkey, Rooster, Dog, and Pig.[119] Complex systems of predicting fate and destiny based on one's birthday, birth season, and
birth hours, such as ziping and Zi Wei Dou Shu (simplified Chinese: 紫微斗数; traditional Chinese: 紫微斗数; pinyin: zǐwēidǒushù) are still used regularly in modern-day Chinese one. The Vietnamese zodiac is almost identical to the Chinese,
except for second animal being the Water Buffalo instead of the Cat instead of the Rabbit. The Japanese have since 1873 celebrated the beginning of the new year on 1 January as per the Gregorian calendar. The Thai lunar
calendar, or during the Songkran festival (now celebrated every 13-15 April), depending on the purpose of the use. [121] See also: Christian views on astrology, Jewish views on astrology, Jewish views on astrology, Jewish views on astrology, Jewish views on astrology and Muslim views on astrology and Muslim views on astrology.
responsibility, and God not being the cause of evil,[122] but he also grounded his opposition philosophically, citing the failure of astrology to explain twins who behave differently although conceived at the same moment and born at approximately the same time.[123] A drawing of Avicenna Some of the practices of astrology were contested on
theological grounds by medieval Muslim astronomers such as Al-Farabi (Alpharabius), Ibn al-Haytham (Alhazen) and Avicenna. They said that the methods of astrologers conflicted with orthodox religious views of Islamic scholars, by suggesting that the Will of God can be known and predicted. [124] For example, Avicenna's 'Refutation against
astrology', Risāla fī ibṭāl aḥkām al-nojūm, argues against the practice of astrology while supporting the principle that planets influenced life on earth in a deterministic way, but argued against the possibility of determining the exact influence of the stars
[125] Essentially, Avicenna did not deny the core dogma of astrology, but denied our ability to understand it to the extent that precise and fatalistic predictions could be made from it.[126] Ibn Qayyim al-Jawziyya (1292-1350), in his Miftah Dar al-SaCadah, also used physical arguments in astronomy to question the practice of judicial astrology.[127]
He recognised that the stars are much larger than the planets, and argued: And if you astrologers answer that it is precisely because of this distance and smallness that their influences are negligible, then why is it that you have given an influence to al-Ra's [the head]
and al-Dhanab [the tail], which are two imaginary points [ascending and descending nodes]?[127] Martin Luther denounced astrology in his Table Talk. He asked why twins like Esau and Jacob had two different natures yet were born at the same time. Luther also compared astrologers to those who say their dice will always land on a
certain number. Although the dice may roll on the number a couple of times, the predictor is silent for all the times the dice fails to land on that number. [128] What is done by God, ought not to be ascribed to the stars. The upright and true Christian religion opposes and confutes all such fables. [128]—Martin Luther, Table Talk The Catechism of the
Catholic Church maintains that divination, including predictive astrology, is incompatible with modern Catholic beliefs[129] such as free will:[123] All forms of divination are to be rejected: recourse to Satan or demons, conjuring up the dead or other practices falsely supposed to "unveil" the future. Consulting horoscopes, astrology, palm reading,
interpretation of omens and lots, the phenomena of clairvoyance, and recourse to mediums all conceal a desire for power over time, history, and, in the last analysis, other human beings, as well as a wish to conciliate hidden powers. They contradict the honor, respect, and loving fear that we owe to God alone.[130]—Catechism of the Catholic Church
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Protoscience Pseudoscience Scientific evidence Scientific method Superstition Uncertainty Urban legend vte Popper proposed falsifiability as something that distinguishes science from non-science, using astrology as the example of an idea that has not dealt with falsification during experiment. The scientific community rejects astrology as having no
explanatory power for describing the universe, and considers it a pseudoscience.[131][132][133] Scientific testing of astrology has been conducted, and no evidence has been found to support any of the premises or purported effects outlined in astrological traditions.[134][135][136] There is no proposed mechanism of action by which the positions
and motions of stars and planets could affect people and events on Earth that does not contradict basic and well understood aspects of biology and physics.[137][17] Those who have faith in astrology have been characterised by scientific basis for their beliefs, and well understood aspects of biology and physics.[137][17] Those who have faith in astrology have been characterised by scientific basis for their beliefs, and well understood aspects of biology and physics.[137][17] Those who have faith in astrology have been characterised by scientific basis for their beliefs, and well understood aspects of biology and physics.[137][17] Those who have faith in astrology have been characterised by scientific basis for their beliefs, and the scientific basis for their beliefs, and the scientific basis for their beliefs.
indeed that there is strong evidence to the contrary".[138] Confirmation bias is a form of cognitive bias, a psychological factor that contributes to belief in astrology. [140][141][142][a] Astrology believers tend to selectively remember predictions that turn out to be true, and do not remember those that turn out false. Another, separate, form of
confirmation bias also plays a role, where believers often fail to distinguish between messages that demonstrate special ability and those that do not.[140] Thus there are two distinct forms of confirmation bias that are under study with respect to astrological belief.[143] Under the criterion of falsifiability, first proposed by the philosopher of science
Karl Popper, astrology is a pseudoscience.[144] Popper regarded astrology as "pseudo-empirical" in that "it appeals to observation and experiment.[145] In contrast to Scientific disciplines, astrology has not responded to falsification through experiment.[146]: 206 In contrast to Popper, the
philosopher Thomas Kuhn argued that it was not lack of falsifiability that makes astrology unscientific, but rather that the process and concepts of astrology are non-empirical. [147]:401 Kuhn thought that, though astrology unscientific, nor do attempts
by astrologers to explain away failures by saying that creating a horoscope is very difficult. Rather, in Kuhn's eyes, astrology is not science because it was always more akin to medieval medicine; astrologers followed a sequence of rules and guidelines for a seemingly necessary field with known shortcomings, but they did no research because the
fields are not amenable to research,[148]:8 and so "they had no puzzles to solve and therefore no science to practise."[147]:401, [148]:8 While an astronomer could not revise the astrological hypothesis in a meaningful way. As such, to Kuhn, even if the
stars could influence the path of humans through life, astrology is not scientific.[148]:8 The philosopher Paul Thagard asserts that astrology cannot be regarded as falsified in this sense until it has been replaced with a successor. In the case of predicting behaviour, psychology is the alternative.[6]:228 To Thagard a further criterion of demarcation of
science from pseudoscience is that the state-of-the-art must progress and that the community of researchers should be attempting to compare the current theory to alternatives, and not be "selective in considering confirmations."[6]: 227-228 Progress is defined here as explaining new phenomena and solving existing problems,
yet astrology has failed to progress having only changed in normal science believing that the foundations of astrology were well established despite the "many unsolved problems", and in the face of better alternative theories (psychology). For these
reasons Thagard views astrology as pseudoscience.[6][149]: 228 For the philosopher Edward W. James, astrology is irrational not because an analysis of the astrological literature shows that it is infused with fallacious logic and poor reasoning.[150]: 34 What
if throughout astrological writings we meet little appreciation of coherence, blatant insensitivity to evidence, no sense of a hierarchy of reasons, slight command over the contextual force of critieria, stubborn unwillingness to pursue an argument where it leads, stark naivete concerning the efficacy of explanation and so on? In that case, I think, we are
perfectly justified in rejecting astrology as irrational. ... Astrology simply fails to meet the multifarious demands of legitimate reasoning.—Edward W. James[150]:34 Astrology has not demonstrated its effectiveness in controlled studies and has no scientific validity.[151][19] Where it has made falsifiable predictions under controlled conditions, they
have been falsified.[152] One famous experiment included 28 astrological Inventory (CPI) questionnaire.[153][154] The double-blind experimental protocol used in this study was agreed upon by a group of physicists and a group of
astrologers[19] nominated by the National Council for Geocosmic Research, who advised the experimenters, helped ensure that the test was fair[18]:420, [18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the tests (two more volunteered afterwards).[18]:420 They also chose 26 out of the 28 astrologers for the 28 astro
study, published in Nature in 1985, found that predictions based on natal astrologist Michel Gauquelin stated that though he had failed to find evidence that supported indicators like zodiacal signs and planetary
aspects in astrology, he did find positive correlations between the diurnal positions of some planets and success in professions that astrology traditionally associates with those planets of successful athletes and became known as the Mars effect.
[157]:213 A study conducted by seven French scientists attempted to replicate the claim, but found no statistical evidence.[157]:213-214 They attributed the effect to selective bias on Gauquelin's part, accusing him of attempting to persuade them to add or delete names from their study.[158] Geoffrey Dean has suggested that the effect may be
caused by self-reporting of birth dates by parents rather than any issue with the study by Gauquelin. The suggestion is that a small subset of the parents may have had changed birth times to be consistent with better astrological charts for a related profession. The number of births under astrologically undesirable conditions was also lower, indicating
that parents choose dates and times to suit their beliefs. The sample group was taken from a time where belief in astrology was more common. Gauquelin had failed to find the Mars effect in more recent populations, where a nurse or doctor recorded the birth information. [154]: 116 Dean, a scientist and former astrologer, and psychologist Ivan Kelly
conducted a large scale scientific test that involved more than one hundred cognitive, behavioural, physical, and other variables—but found no support for astrology.[159][160] Furthermore, a meta-analysis pooled 40 studies that involved 700 astrologers and over 1,000 birth charts. Ten of the tests—which involved 300 participants—had the
astrologers pick the correct chart interpretation out of a number of others that were not the astrologically correct chart interpretation (usually three to five others). When date and other obvious clues were removed, no significant results suggested there was any preferred chart.[160] Testing the validity of astrology can be difficult, because there is no
consensus amongst astrologers as to what astrologers as to what it can predict.[161] Most professional astrology is or what it can predict the future or describe a person's personality and life, but most horoscopes only make vague untestable statements that can apply to almost anyone.[20][162] Many astrologers believe that astrology is scientific,[163]
while some have proposed conventional causal agents such as electromagnetism and gravity.[163] Scientists reject these mechanisms as implausible[163] since, for example, the magnetic field, when measured from Earth, of a large but distant planet such as Jupiter is far smaller than that produced by ordinary household appliances.[164] Western
astrology has taken the earth's axial precession (also called precession of the equinoxes) into account since Ptolemy's Almagest, so the "first point of Aries", the start of the astrological year, continually moves against the background of the starts; tropical astrologers distinguish the constellations
from their historically associated sign, thereby avoiding complications involving precession.[166] Charpak and Broch, noting this, referred to astrology based on the tropical zodiac as being "...empty boxes that have nothing to do with anything and are devoid of any consistency or correspondence with the stars."[166] Sole use of the tropical zodiac is
inconsistent with references made, by the same astrologers, to the Age of Aquarius, which depends on when the vernal point enters the constellation of Aquarius. [19] Astrologers usually have only a small knowledge of astronomy, and often do not take into account basic principles—such as the precession of the equinoxes, which changes the position
of the sun with time. They commented on the example of Élizabeth Teissier, who wrote that, "The sun ends up in the same place in the same 
difference of about twenty-two thousand miles between Earth's location on any specific date in two successive years, and that thus they should not be under the same influence according to astronomers and other natural scientists.
is that astrology is a pseudoscience which carries no predictive capability, with many philosophers of science considering it a "paradigm or prime example of pseudoscience which carries no predictive capability, with many philosophers of science considering it a "paradigm or prime example of pseudoscience or projecting the distinction
backwards into the past.[168] Thagard, while demarcating it as a pseudoscience, notes that astrology "should be judged as not pseudoscientific in classical or Renaissance times...Only when the historical and social aspects of science
such as Tamsyn Barton, Roger Beck, Francesca Rochberg, and Wouter J. Hanegraaff argue that such a wholesale description is anachronistic when applied to historical contexts, stressing that astrology was not pseudoscience before the 18th century and the importance of the discipline to the development of medieval science.[170][171][172][173]
[174] R. J. Hakinson writes in the context of Hellenistic astrology that "the belief in the possibility of [astrology] was, at least some of the universe."[175] Nicholas Campion, both an astrology argues that Indigenous astronomy is largely used as
a synonym for astrology in academia, and that modern Indian and Western astrology are better understood as modes of cultural astronomy or ethnoastronomy. [176] Roy Willis and Patrick Curry draw a distinction between propositional episteme and metaphoric metis in the ancient world, identifying astrology with the latter and noting that the central
concern of astrology "is not knowledge (factual, let alone scientific) but wisdom (ethical, spiritual and pragmatic)".[177] Similarly, historian of science Justin Niermeier-Dohoney writes that astrology was "more than simply a science Justin Niermeier and pragmatic)".[177] Similarly, historian of science Justin Niermeier-Dohoney writes that astrology was "more than simply a science of prediction using the stars and comprised a vast body of beliefs, knowledge, and practices with the overarching theme
of understanding the relationship between humanity and the rest of the cosmos through an interpretation of stellar, solar, lunar, and planetary movement." Scholars such as Assyriologist Matthew Rutz have begun using the term "astral knowledge" rather than astrology "to better describe a category of beliefs and practices much broader than the
term 'astrology' can capture."[178][179] In the West, political leaders have sometimes consulted astrologers. For example, the British intelligence agency MI5 employed Louis de Wohl as an astrologer after it was reported that Adolf Hitler used astrology to time his actions. The War Office was "...interested to know what Hitler's own astrologers would
be telling him from week to week."[180] In fact, de Wohl's predictions were so inaccurate that he was soon labelled a "complete charlatan", and later evidence showed that Hitler considered astrology "complete nonsense".[181] After John Hinckley's attempted assassination of US President Ronald Reagan, first lady Nancy Reagan commissioned
 astrologer Joan Quigley to act as the secret White House astrologer. However, Quigley's role ended in 1988 when it became public through the memoirs of former chief of staff, Donald Regan. [182] [183] [184] There was a boom in interest in astrology in the late 1960s. The sociologist Marcello Truzzi described three levels of involvement of "Astrology" in the late 1960s.
believers" to account for its revived popularity in the face of scientific discrediting. He found that most astrology-believers did not think that it was a scientific explanation with predictive power. Instead, those superficially involved, knowing "next to nothing" about astrology's 'mechanics', read newspaper astrology columns, and could benefit from
coherent and exclusive group. Those at the third level were highly involved and usually cast horoscopes for themselves. Astrology provided this small minority of astrology seriously, possibly as an overarching
religious worldview (a sacred canopy, in Peter L. Berger's phrase), whereas the other two groups took it playfully and irreverently.[185] In 1953, the sociologist Theodor W. Adorno conducted a study of the astrology column of a Los Angeles newspaper as part of a project examining mass culture in capitalist society.[186]: 326 Adorno believed that
popular astrology, as a device, invariably leads to statements that encouraged conformity—and that astrology is a large-scale manifestation of systematic irrationalism, where individuals are subtly led—through
flattery and vague generalisations—to believe that the author of the column is addressing them directly.[187] Adorno drew a parallel with the phrase opium of the people, by Karl Marx, by commenting, "occultism is the metaphysic of the dopes."[186]: 329 A 2005 Gallup poll and a 2009 survey by the Pew Research Center reported that 25% of US
adults believe in astrology, [188] [189] while a 2018 Pew survey found a figure of 29%. [190] According to data released in the National Science Foundation's 2014 Science and Engineering Indicators study, "Fewer Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted that in 2012, "slightly more than half of Americans rejected astrology in 2012 than in recent years." [191] The NSF study noted than half of Americans rejected astrology in 2012 than in recent years.
said that astrology was 'not at all scientific,' whereas nearly two-thirds gave this response in 2010. The comparable percentage has not been this low since 1983."[191] Astrology apps became popular in the late 2010s, some receiving millions of dollars in Silicon Valley venture capital. [192] Birth (in blue) and death (in red) rates of Japan since 1950,
with the sudden drop in births during hinoeuma year (1966) In India, there is a long-established and widespread belief in astrology. It is commonly used for daily life, particularly in matters concerning marriage and career, and makes extensive use of electional, horary and karmic astrology. [193][194] Indian politics have also been influenced by
astrology.[195] It is still considered a branch of the Vedanga.[196][197] In 2001, Indian scientists and politicians debated and critiqued a proposal to use state money to fund research into astrology,[198] resulting in permission for Indian universities to offer courses in Vedic astrology.[199] In February 2011, the Bombay High Court reaffirmed
astrology's standing in India when it dismissed a case that challenged its status as a science. [200] In Japan, strong belief in astrology has led to dramatic changes in the fertility rate and the number of abortions in the years of Fire Horse. Adherents believe that women born in hinoeuma years are unmarriageable and bring bad luck to their father or
husband. In 1966, the number of babies born in Japan dropped by over 25% as parents tried to avoid the stigma of having a daughter born in the Moon, 1597 The fourteenth-century English poets John Gower and Geoffrey Chaucer both referred to astrology in their
works, including Gower's Confessio Amantis and Chaucer's The Canterbury Tales. [203] Chaucer commented explicitly on astrology, with an account of how to find the ascendant or rising sign. [204] In the fifteenth century, references to astrology, such
as with similes, became "a matter of course" in English literature.[203] Title page of Calderón de la Barca's Astrologo Fingido, Madrid, 1641 In the sixteenth century, John Lyly's 1597 play, The Woman in the Moon, is wholly motivated by astrology,[205] while Christopher Marlowe makes astrological references in his plays Doctor Faustus and
Tamburlaine (both c. 1590),[205] and Sir Philip Sidney refers to astrology at least four times in his romance The Countess of Pembroke's Arcadia (c. 1580).[205] Edmund Spenser uses astrology both decoratively and causally in his poetry, revealing "...unmistakably an abiding interest in the art, an interest shared by a large number of his
contemporaries."[205] George Chapman's play, Byron's Conspiracy (1608), similarly uses astrology as a causal mechanism in the drama. [206] William Shakespeare's attitude towards astrology and Cleopatra, and Richard II. [206] Shakespeare was familiar with astrology and
made use of his knowledge of astrology in nearly every play he wrote, [206] assuming a basic familiarity with the subject in his commercial audience, [206] Outside theatre, the physician and mystic Robert Fludd practised astrology, as did the guack doctor Simon Forman, [206] In Elizabethan England, "The usual feeling about astrology ... [was] that it
is the most useful of the sciences."[206] In seventeenth century Spain, Lope de Vega, with a detailed knowledge of astronomy, wrote plays that ridicule astrology. In his pastoral romance La Arcadia (1598), it leads to absurdity; in his novela Guzman el Bravo (1624), he concludes that the stars were made for man, not man for the stars.[207] Calderón
de la Barca wrote the 1641 comedy Astrologo Fingido (The Pretended Astrologo Fingido (The Pretended
the US Air Force Band Problems playing these files? See media help. The most famous piece of music influenced by astrology is the orchestral suite The Planets. Written by the British composer Gustav Holst (1874-1934), and first performed in 1918, the framework of The Planets is based upon the astrological symbolism of the planets. [209] Each of
the seven movements of the suite is based upon a different planet, though the movement are not in the order of the planets from the Sun. The composer Colin Matthews wrote an eighth movement entitled Pluto, the Renewer, first performed in 2000, as the suite was written prior to Pluto's discovery.[210] In 1937, another British composer, Constant
Lambert, wrote a ballet on astrological themes, called Horoscope. [211] In 1974, the New Zealand composer Edwin Carr wrote The Twelve Signs: An Astrological Entertainment [212] for orchestra without strings. [213] Camille Paglia acknowledges astrology as an influence on her work of literary criticism Sexual Personae (1990). [214] The American
comedian Harvey Sid Fisher is known for his comedic songs about astrology [215] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries, recipient of the 2013 Man Booker Prize [216] Astrology features strongly in Eleanor Catton's The Luminaries (astrology features strong
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pseudoscientific belief; i.e., they believed in at least 1 of the 10 survey items[29]"... " Those 10 items were extrasensory perception (ESP), that houses can be haunted, ghosts/that spirits of dead people can come back in certain places/situations, telepathy/communication between minds without using traditional senses, clairvoyance/the power of the
mind to know the past and predict the future, astrology/that the position of the stars and planets can affect people's lives, that people can communicate mentally with someone who has died, witches, reincarnation/the rebirth of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to temporarily assume control of a body. { cite of the soul in a new body after death, and channeling/allowing a "spirit-being" to the soul in a new body after death, and channeling a new 
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due far more to Chaucer than to Gower. Gower, too, saw artistic possibilities in the new astrological learning, and promptly used these in his retelling of the Alexander legend—but he confined himself, for the most part, to a bald rehearsal of facts and theories. It is, accordingly, as a part of the long encyclopaedia of natural science that he inserted
into his Confessio Amantis, and in certain didactic passages of the Vox Clamantis and the Mirour de l'Omme, that Astrology ... were Albumasar's Introductorium in Astronomiam, the Pseudo-Aristotelian Secretum Secretum, Brunetto Latini's Trésor, and the Speculum
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CommonsQuotations from WikiquoteTexts from WikiquoteTexts from WikisourceData from Wik
4.9G)5G (5.5G)6G Mobile telecommunications technology, as the successor to the fourth generation (4G), and has been deployed by mobile operators worldwide since 2019. Compared to 4G, 5G networks offer not
only higher download speeds, with a peak speed of 10 gigabits per second (Gbit/s),[a] but also substantially lower latency, enabling near-instantaneous communication through cellular base stations and antennae.[1] There is one global unified 5G standard: 5G New Radio (5G NR),[2] which has been developed by the 3rd Generation Partnership
Project (3GPP) based on specifications defined by the International Telecommunication Union (ITU) under the IMT-2020 requirements.[3] The increased bandwidth of 5G over 4G allows them to connect more devices simultaneously and improving the quality of cellular data services in crowded areas.[4] These features make 5G particularly suited for
applications requiring real-time data exchange, such as extended reality (XR), autonomous vehicles, remote surgery, and industrial automation. Additionally, the increased bandwidth is expected to drive the adoption of 5G as a general Internet service provider (ISP), particularly through fixed wireless access (FWA), competing with existing
technologies such as cable Internet, while also facilitating new applications in the machine-to-machine communication and the Internet of Things (IoT), the latter of which may include diverse applications such as smart cities, connected infrastructure, industrial IoT, and automated manufacturing processes. Unlike 4G, which was primarily designed
for mobile broadband, 5G can handle millions of IoT devices with stringent performance requirements, such as real-time sensor data processing and edge computing. 5G networks (NTN) such as satellites and high-altitude platforms, to provide global coverage,
including remote and underserved areas. 5G deployment faces challenges such as significant infrastructure investment, spectrum allocation, security risks, and concerns about energy efficiency and environmental impact associated with the use of higher frequency bands. However, it is expected to drive advancements in sectors like healthcare,
transportation, and entertainment. Mobile base station at Hatta city, UAE 5G networks are cellular networks, [5] in which the service area is divided into small geographical areas called cells. All 5G wireless devices in a cell communicate by radio waves with a cellular base station via fixed antennas, over frequencies assigned by the base station. The
for 5G, the 3rd Generation Partnership Project (3GPP), defines "5G" as any system using 5G NR (5G New Radio) software—a definition that came into general use by late 2018. 5G continues to use OFDM encoding. Several network operators use millimeter waves or mmWave called FR2 in 5G terminology, for additional capacity and higher
throughputs. Millimeter waves have a shorter range than the lower frequency microwaves, therefore the cells are of a smaller size. Millimeter waves also have more trouble passing through building walls and humans. Millimeter waves also have more trouble passing through building walls and humans.
partly by using additional higher-frequency radio waves in addition to the low- and medium-band frequency bands—low, medium or high. 5G can be implemented in low-band, mid-band or high-band millimeter-wave. Low-band 5G
uses a similar frequency range to 4G smartphones, 600-900 MHz, which can potentially offer higher download speeds than 4G: 5-250 megabits per second (Mbit/s).[6][7] Low-band cell towers have a range and coverage area similar to 4G towers. Mid-band 5G uses microwaves of 1.7-4.7 GHz, allowing speeds of 100-900 Mbit/s, with each cell tower
providing service up to several kilometers in radius. This level of service is the most widely deployed, and was deployed in many metropolitan areas in 2020. Some regions are not implementing the low band, making Mid-band 5G uses frequencies of 24-47 GHz, near the bottom of the millimeter wave band,
although higher frequencies may be used in the future. It often achieves download speeds in the gigabit-per-second (Gbit/s) range, comparable to co-axial cable Internet service. However, millimeter waves (mmWave or mmW) have a more limited range, requiring many small cells.[8] They can be impeded or blocked by materials in walls or windows or
pedestrians.[9][10] Due to their higher cost, plans are to deploy these cells only in dense urban environments and areas where crowds of people congregate such as sports stadiums and convention centers. The above speeds are those achieved in actual tests in 2020, and speeds are expected to increase during rollout.[6] The spectrum ranging from
24.25 to 29.5 GHz has been the most licensed and deployed 5G mmWave spectrum range in the world.[11] Rollout of 5G technology has led to debate over its security and relationship with Chinese vendors. It has also been the subject of health concerns and misinformation, including discredited conspiracy theories linking it to the COVID-19
pandemic. The ITU-R has defined three main application areas for the enhanced capabilities of 5G. They are Enhanced Mobile Broadband (eMBB), Ultra Reliable Low Latency Communications (mMTC).[12] Only eMBB is deployed in 2020; URLLC and mMTC are several years away in most in mos
locations.[13] Enhanced Mobile Broadband (eMBB) uses 5G as a progression from 4G LTE mobile broadband services, with faster connections, higher throughput, and more capacity. This will benefit areas of higher traffic such as stadiums, cities, and concert venues.[14] 'Ultra-Reliable Low-Latency Communications' (URLLC) refers to using the
network for mission-critical applications that require uninterrupted and robust data exchange. Short-packet data transmission is used to meet both reliability and latency requirements of the wireless communication networks. Massive Machine-Type Communications (mMTC) would be used to connect to a large number of devices. 5G technology will
connect some of the 50 billion connected IoT devices.[15] Most will use the less expensive Wi-Fi. Drones, transmitting via 4G or 5G, will aid in disaster recovery efforts, providing real-time data for emergency responders.[15] Most cars will have a 4G or 5G, will aid in disaster recovery efforts, providing real-time data for emergency responders.[15] Most cars will have a 4G or 5G, will aid in disaster recovery efforts, providing real-time data for emergency responders.[15] Most cars will have a 4G or 5G, will aid in disaster recovery efforts.
able to operate where they do not have a network connection.[16] However, most autonomous vehicles also feature tele-operations for mission accomplishment, and these greatly benefit from 5G technology.[17][18] The 5G Automotive Association has been promoting the C-V2X communication technology that will first be deployed in 4G. It provides
for communication between vehicles and infrastructures.[19] A real time digital twin of the real object such as a turbine engine, aircraft, wind turbines, offshore platform and pipelines. 5G networks helps in building it due to the latency and throughput to capture near real-time IoT data and support digital twins. Mission-critical push-to-talk (MCPTT)
and mission-critical video and data are expected to be furthered in 5G.[20] Fixed wireless connections will offer an alternative to fixed-line broadband (ADSL, VDSL, fiber optic, and DOCSIS connections) in some locations. Utilizing 5G technology, fixed wireless access (FWA) can deliver high-speed internet to homes and businesses without the need for
extensive physical infrastructure. This approach is particularly beneficial in rural or underserved areas where traditional broadband deployment is too expensive or logistically challenging. 5G FWA can outperform older fixed-line technologies such as ADSL and VDSL in terms of speed and latency, making it suitable for bandwidth-intensive
applications like streaming, gaming, and remote work. [21][22][23] Sony has tested the possibility of using local 5G networks to replace the SDI cables currently used in broadcast tests started around 2020 (Orkney, Bavaria, Austria, Central Bohemia) based on FeMBMS (Further evolved multimedia broadcast
multicast service).[25] The aim is to serve unlimited number of mobile or fixed devices with video (TV) and audio (radio) streams without these consuming any data flow or even being authenticated in a network. Main article: Voice over NR 5G networks, like 4G netwo
technology. Instead, voice communication is transmitted over the IP network, similar to IPTV services. To address this, Voice over NR (VoNR) is implemented, allowing voice calls to be carried over the 5G network using the same packet-switched infrastructure as other IP-based services, such as video streaming and messaging. Similarly to how Voice
over LTE (VoLTE) enables voice calls on 4G networks, VoNR (Vo5G) serves as the 5G equivalent for voice communication, but it requires a 5G standalone (SA) network to function. [26] This article possibly contains unsourced predictions, speculative material, or accounts of events that might not occur. Information must be verifiable and based on
reliable published sources. Please help improve it by removing unsourced speculative content. (January 2022) (Learn how and when to remove this message) 5G is capable of delivering significantly faster data rates than 4G (5G is approximately 10 times faster than 4G),[27][28] with peak data rates of up to 20 gigabits per second (Gbps).[29]
Furthermore, average 5G download speeds have been recorded at 186.3 Mbit/s in the U.S. by T-Mobile, [30] while South Korea, as of May 2022[update], leads globally with average speeds of 432 megabits per second (Mbps). [31][32] 5G networks are also designed to provide significantly more capacity than 4G networks, with a projected 100-fold
increase in network capacity and efficiency.[33] The most widely used form of 5G, sub-6 GHz 5G (mid-band), is capable of delivering data rates ranging from 10 to 1,000 megabits per second (Mbps), with a much greater reach than mm Wave bands. C-Band (n77/n78) was deployed by various U.S. operators in 2022 in the sub-6 bands, although its
deployment by Verizon and AT&T was delayed until early January 2022 due to safety concerns raised by the Federal Aviation Administration. The record for 5G speed in a deployed network is 5.9 Gbit/s as of 2023, but this was tested before the network was launched.[34] Low-band frequencies (such as n5) offer a greater coverage area for a given cell
but their data rates are lower than those of mid and high bands in the range of 5-250 megabits per second (Mbps).[7] In 5G, the ideal "air latency" is of the order of 8 to 12 milliseconds i.e., excluding delays due to HARQ retransmissions, handovers, etc. Retransmission latency and backhaul latency to the server must be added to the "air latency" for
correct comparisons. Verizon reported the latency on its 5G early deployment is 30 ms.[35] Edge Servers close to the towers have the possibility to reduce round-trip time (RTT) latency is much higher during handovers; ranging from 50 to 500 milliseconds depending on the
type of handover[citation needed]. Reducing handover interruption time is an ongoing area of research and development; options include modifying the handover margin (offset) and the time-to-trigger (TTT). 5G uses an adaptive modulation and coding scheme (MCS) to keep the block error rate (BLER) extremely low. Whenever the error rate crosses
a (very low) threshold the transmitter will switch to a lower MCS, which will be less error-prone. This way speed is sacrificed to ensure an almost zero error rate. The range of 5G depends on many factors: transmit power, frequency, and interference. For example, mmWave (e.g.: band n258) will have a lower range than mid-band (e.g.: band n78)
which will have a lower range than low-band (e.g.: band n5) Given the marketing hype on what 5G can offer, simulators and drive tests are used by cellular service providers for the precise measurement of 5G performance. Initially, the term was associated with the International Telecommunication Union's IMT-2020 standard, which required an associated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which required as a sociated with the International Telecommunication Union's IMT-2020 standard, which is a sociated with the Internation Union's IMT-2020 standard, which is a sociated with the Internation Union's IMT-2020 standard, which is a sociated with the Internation Union's IMT-2020 standard, which is a sociated with the Internation Union's IMT-2020 standard, which is a sociated with the Internation Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociated with the Impulsion Union's IMT-2020 standard, which is a sociat
theoretical peak download speed of 20 gigabits per second and 10 gigabits per second upload speed, along with other requirements. [29] Then, the industry standard together with LTE as their proposal for submission to the IMT-2020 standard. [37][38] 5G NR can include lower frequencies (FR1)
below 6 GHz, and higher frequencies (FR2), above 24 GHz.[39] However, the speed and latency in early FR1 deployments, using 5G NR software on 4G hardware (non-standalone), are only slightly better than new 4G systems, estimated at 15 to 50% better.[40][41] The standard documents are organized by 3rd Generation Partnership Project (3GPP)
[42][43] with its system architecture defined in TS 23.501.[44] The packet protocol for mobility management (establishing connection and moving between base stations) and session management (round in TS 23.003.[46] DECT NR+ is a
related, non-cellular standard of 5G based on DECT-2020 specifications based on a mesh network.[47][48] Further information: Fronthaul and Common Public Radio Head (RRH) and Base Band Unit (BBU). The 1914.1 standards focus on
network architecture and dividing the connection between the RRU and BBU into two key sections. Radio Unit (RU) being the NGFI-II interface allowing a more diverse and cost-effective network. NGFI-I and NGFI-II have defined
performance values which should be compiled to ensure different traffic types defined by the ITU are capable of being carried. [page needed] The IEEE 1914.3 standard is creating a new Ethernet frame format capable of carrying IQ data in a much more efficient way depending on the functional split utilized. This is based on the 3GPP definition of
functional splits.[page needed] Main article: 5G NR 5G NR (5G New Radio) is the de facto air interface developed for 5G networks.[49] It is the global standard for 3GPP 5G networks.[50] The study of 5G NR within 3GPP standardization process was
ongoing, the industry had already begun efforts to implement infrastructure compliant with the draft standard, with the first large-scale commercial launch of 5G NR networks and handset manufacturers have developed 5G NR enabled handsets.[51] 5Gi is an
alternative 5G variant developed in India. It was developed in a joint collaboration between IIT Madras, IIT Hyderabad, TSDSI, and the Centre of Excellence in Wireless Technology (CEWiT) [citation needed]. 5Gi is designed to improve 5G coverage in rural and remote areas over varying geographical terrains. 5Gi uses Low Mobility Large Cell (LMLC
to extend 5G connectivity and the range of a base station.[52] In April 2022, 5Gi was merged with the global 5G NR standard variation of 5G known as 5G TF (Verizon 5G Technical Forum) for Fixed Wireless Access in 2018. The 5G service provided to
customers in this standard is incompatible with 5G NR. Verizon has since migrated to 5G NR.[54] 5G-SIG: KT Corporation had a pre-standard variation of 5G developed called 5G-SIG. This was deployed at the Pyeongchang 2018 Winter Olympics.[55] In the Internet of things (IoT), 3GPP is going to submit the evolution of NB-IoT and eMTC (LTE-M) as
5G technologies for the LPWA (Low Power Wide Area) use case.[56] Standards are being developed by 3GPP to provide access to end devices via non-terrestrial networks (NTN), i.e. satellite or airborne telecommunication equipment to allow for better coverage outside of populated or otherwise hard to reach locations.[57][58] The enhanced
communication quality relies on the unique properties of Air to Ground channel. Several manufacturers have announced and released hardware that integrates 5G with satellite networks: Samsung Electronics introduced a standardized 5G NTN modem technology in Korea in February 2023,[59] simulated on their Exynos Modem 5300, facilitating
smartphone-satellite communication. MediaTek launched the world's first commercially available 5G IoT-NTN chipset, MT6825, capable of automatic satellite IoT solutions on June 22, 2023, including the Qualcomm 212S and
9205S modems, supporting the Qualcomm Aware platform for real-time asset tracking and device management. [62] Motorola's Defy Satellite Link hotspot, powered by MediaTek's MT6825, became available in June 2023, providing a portable satellite messaging solution with robust battery life and built-in GPS. [63][64] Rakuten Symphony, in
collaboration with Supermicro, announced high-performing Open RAN technologies and storage systems for operators of cloud-based mobile services.[65] 5G-Advanced (also known as 5.5G or 5G-A) is an evolutionary upgrade to 5G technology, defined under the 3GPP Release 18 standard. It serves as a transitional phase between 5G and future 6G
networks, focusing on performance optimization, enhanced spectral efficiency, and expanded functionality. This technology supports advanced applications such as extended reality (XR), massive machine-type communication (mMTC), and ultra-low latency for critical services, such as autonomous vehicles. [66] [67] [68] 5G-Advanced applications for critical services, such as autonomous vehicles.
would offer a theoretical 10 Gbps downlink, 1 Gbps uplink, 100 billion device connections and lower latency. [69] Additionally, 5G-Advanced integrates artificial intelligence (AI) and machine learning (ML) to optimize network operations, enabling smarter resource allocation and predictive maintenance. It also enhances network slicing, allowing highly
customized virtual networks for specific use cases such as industrial automation, smart cities, and critical communication systems. 5G-Advanced aims to minimize service interruption times during handovers to nearly zero, ensuring robust connectivity for devices in motion, such as high-speed trains and autonomous vehicles. To further support
emerging IoT applications, 5G-Advanced expands the capabilities of RedCap (Reduced Capability) devices, enabling their efficient use in scenarios that require low complexity and power consumption.[70][71] Furthermore, 5G-Advanced introduces advanced time synchronization methods independent of GNSS, providing more precise timing for
critical applications. For the first time in the development of mobile network standards defined by 3GPP, it offers fully independent geolocation capabilities, allowing position determination without relying on satellite systems such as GPS. The standard includes extended support for non-terrestrial networks (NTN), enabling communication via
satellites and unmanned aerial vehicles, which facilitates connectivity in remote or hard-to-reach areas. [72] In December 2023, Finnish operator DNA demonstrated 10 Gbps speeds on its network using 5G-Advanced technology. [73][74] The Release 18 specifications were finalized by mid-2024. [75][76] On February 27, 2025, Elisa announced its
deployment of the first 5G-Advanced network in Finland.[77] In March 2025, China Mobile started deployment of 5G-Advanced network in Hangzhou.[78] See also: List of 5G NR networks 5G 3.5 GHz cell site of Vodafone in Karlsruhe, Germany Beyond mobile operator networks, 5G is
also expected to be used for private networks with applications in industrial IoT, enterprise networking, and critical communications, in what being described as NR-U (5G NR in Unlicensed Spectrum)[79] and Non-Public Networks (NPNs) operating in licensed spectrum. By the mid-to-late 2020s, standalone private 5G networks are expected to
become the predominant wireless communications medium to support the ongoing Industry 4.0 revolution for the digitization and automation of manufacturing and process industries. [80] 5G was expected to increase phone sales. [81] Initial 5G NR launches depended on pairing with existing LTE (4G) infrastructure in non-standalone (NSA) mode (5Government).
NR radio with 4G core), before maturation of the standalone (SA) mode with the 5G core network. [82] As of April 2019, the Global Mobile Suppliers Association had identified 224 operators in 88 countries that have demonstrated, are testing or trialing, or have been licensed to conduct field trials of 5G technologies, are deploying 5G networks or have
announced service launches.[83] The equivalent numbers in November 2018 were 192 operators in 81 countries.[84] The first country to adopt 5G on a large scale was South Korea, in April 2019. Swedish telecoms giant Ericsson predicted that 5G Internet will cover up to 65% of the world's population by the end of 2025.[85] Also, it plans to invest 1
billion reals ($238.30 million) in Brazil to add a new assembly line dedicated to fifth-generation technology (5G) for its Latin American operations.[86] When South Korea launched its 5G network, all carriers used Samsung, Ericsson, and Nokia base stations and equipment, except for LG U Plus, who also used Huawei equipment.[87][88] Samsung was
the largest supplier for 5G base stations in South Korea at launch, having shipped 53,000 base stations at the time, out of 86,000 base stations at the time, out of 86,000 base stations in South Korea, SK Telecom claimed 38,000 base stations, KT Corporation 30,000 and LG U Plus 18,000 base stations in South Korea, SK Telecom claimed 38,000 base stations, KT Corporation 30,000 and LG U Plus 18,000 base stations in South Korea, SK Telecom claimed 38,000 base stations, KT Corporation 30,000 and LG U Plus 18,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea at launch, having shipped 53,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea at launch, having shipped 53,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea at launch, having shipped 53,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 base stations in South Korea, SK Telecom claimed 38,000 ba
of which 85% are in six major cities.[90] They are using 3.5 GHz (sub-6) spectrum in non-standalone (NSA) mode and tested speeds were from 193 to 430 Mbit/s down.[91] 260,000 signed up in the first month and 4.7 million by the end of 2019.[92] T-Mobile US was the first company in the world to launch a commercially available 5G NR Standalone
approximately 70% of worldwide 5G base stations.[101]:182 Large quantities of new radio spectrum (5G NR frequency bands) have been allocated to 5G.[102] For example, in July 2016, the U.S. Federal Communications Commission (FCC) freed up vast amounts of bandwidth in underused high-band spectrum for 5G. The Spectrum Frontiers Proposal
(SFP) doubled the amount of millimeter-wave unlicensed four times the amount of flexible, mobile-use spectrum to 14 GHz and created four times the amount of flexible, mobile-use spectrum to 2018, European Union lawmakers agreed to open up the 3.6 and 26 GHz bands by 2020.[104] As of March 2019[update], there are reportedly 52 countries,
spectrum for 5G use.[105] 5G connectivity on a Samsung Galaxy S10 In March 2019, the Global Mobile Suppliers Association released the industry's first database tracking worldwide 5G devices with 33 different devices including regional
variants. There were seven announced 5G device form factors: (telephones (×1), Indoor and outdoor customer-premises equipment (×8), modules (×5), Snap-on dongles and adapters (×2), and USB terminals (×1).[107] By October 2019, the number of announced 5G devices had risen to 129, across 15 form factors, from 56
vendors.[108] In the 5G IoT chipset arena, as of April 2019 there were four commercial 5G modem chipsets (Intel, MediaTek, Qualcomm, Samsung) and one commercial processor/platform, with more launches expected in the near future.[109]An Apple iPhone showing that it is connected to a 5G Network On March 4, 2019, the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm, Samsung) and one commercial processor/platform, with more launches expected in the near future.[109]An Apple iPhone showing that it is connected to a 5G Network On March 4, 2019, the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm, Samsung) and one commercial processor/platform, with more launches expected in the near future.[109]An Apple iPhone showing that it is connected to a 5G Network On March 4, 2019, the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm, Samsung) and one commercial processor/platform, with more launches expected in the near future.[109]An Apple iPhone showing that it is connected to a 5G Network On March 4, 2019, the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm, Samsung) and one commercial processor/platform, with more launches expected in the near future.[109]An Apple iPhone showing that it is connected to a 5G Network On March 4, 2019, the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the near future.[109]An Apple iPhone showing the first-ever all-5G modem chipsets (Intel, MediaTek, Qualcomm) and the n
smartphone Samsung Galaxy S10 5G was released. According to Business Insider, the 5G feature was showcased as more expensive in comparison with the 4G Samsung Galaxy S10e.[110] On March 19, 2020, HMD Global, the current maker of Nokia-branded phones, announced the Nokia 8.3 5G, which it claimed as having a wider range of 5G
                                     phone released to that time. The mid-range model is claimed to support all 5G bands from 600 MHz to 3.8 \, \mathrm{GHz}.[111] Google Pixel smartphones support 5G starting with the iPhone 12.[113][114] See also: 5G NR frequency bands The air
interface defined by 3GPP for 5G is known as 5G New Radio (5G NR), and the specification is subdivided into two frequency bands, FR1 (below 6 GHz) and FR2 (24-54 GHz). Otherwise known as sub-6, the maximum channel bandwidth defined for FR1 is 100 MHz, due to the scarcity of continuous spectrum in this crowded frequency range. The band
most widely being used for 5G in this range is 3.3-4.2 GHz. The Korean carriers use the n78 band at 3.5 GHz. Some parties used the term "mid-band" frequency to refer to higher part of this frequency range that was not used in previous generations of mobile communication. The minimum channel bandwidth defined for FR2 is 50 MHz and the
maximum is 400 MHz, with two-channel aggregation supported in 3GPP Release 15. Signals in this frequency, the greater the ability to support high data-transfer speeds. This is because a given channel bandwidth takes up a lower fraction of
the carrier frequency, so high-bandwidth channels are easier to realize at higher carrier frequencies. 5G in the 24 GHz range or above use higher frequency, so high-bandwidth channels are easier to realize at higher carrier frequencies. 5G in the 24 GHz range or above use higher frequency, so high-bandwidth channels are easier to realize at higher carrier frequencies. 5G in the 24 GHz range or above use higher frequency, so high-bandwidth channels are easier to realize at higher carrier frequencies. 5G in the 24 GHz range or above use higher frequency frequency frequency frequency frequencies.
5G base stations every few hundred meters in order to use higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of these higher frequency 5G signals cannot penetrate solid objects easily, such as cars, trees, walls, and even humans, because of the nature of
which finds applications in places like restaurants and shopping malls.[115] Cell types Deployment environment Max. number of users Output power (W) Max. distance from base station 5G NR FR2 Femtocell Homes, businesses Home: 4-8Businesses: 16-32 indoors: 0.2-1 tens of meters Pico cell Public areas like shopping
malls, airports, train stations, skyscrapers 64 to 128 indoors: 0.1-0.25 outdoors: 1-5 tens of meters Micro cell Urban areas to fill coverage gaps 128 to 256 outdoors: 5-10 few hundreds of meters Wi-Fi(for comparison) Homes, businesses fewer
than 50 indoors: 0.02-0.1 outdoors: 0.02-0.1 few tens of meters See also: Multiple-input and multiple-output) systems use multiple antennas at the transmitter and receiver ends of a wireless communication system. Multiple antennas use the spatial dimension for multiplexing in addition to the time and frequency ones, without
changing the bandwidth requirements of the system. Spatial multiplexing gains allow for an increase in the number of transmission layers, thereby boosting system capacity. Massive MIMO and Multi-user MIMO (MU-MIMO)
The antenna array can schedule users separately to satisfy their needs and beamform towards the intended users, minimizing interference. [116] Main article: Multi-access edge computing Edge computing is delivered by computing service.
availability.[119] Main article: Small cell Small cells are low-powered cellular radio access nodes that operate in licensed and unlicensed spectrum that have a range of 10 meters to a few kilometers. Small cells are critical to 5G networks, as 5G's radio waves can't travel long distances, because of 5G's higher frequencies.[120][121][122][123] Main
article: Beamforming There are two kinds of beamforming (BF): digital and analog. Digital and analog beamforming involves sending the data across multiple streams (layers), while analog beamforming shaping the radio waves to point in a specific direction. The analog BF technique combines the power from elements of the antenna array in such a way that
signals at particular angles experience constructive interference, while other signals pointing to other angles experience destructive interference. This improves signal quality in the specific direction, as well as data transfer speeds. 5G uses both digital and analog beamforming to improve the system capacity.[124][125] One expected benefit of the
transition to 5G is the convergence of multiple networking functions to achieve cost, power, and complexity reductions. LTE has targeted convergence with Wi-Fi band/technology via various efforts, such as License Assisted Access (LAA; 5G signal in unlicensed frequency bands that are also used by Wi-Fi) and LTE-WLAN Aggregation (LWA;
convergence with Wi-Fi Radio), but the differing capabilities of cellular and Wi-Fi have limited the scope of convergence. However, significant improvement in cellular performance specifications in 5G, combined with migration from Distributed Radio Access Network (D-RAN) to Cloud- or Centralized-RAN (C-RAN) and rollout of cellular small cells can
potentially narrow the gap between Wi-Fi and cellular networks in dense and indoor deployments. Radio convergence could result in sharing ranging from the aggregation of cellular and Wi-Fi channels to the use of a single silicon device for multiple radio access technologies. [126] NOMA (non-orthogonal multiple access) is a proposed multiple-access
technique for future cellular systems via allocation of power.[127] Main articles: Software-defined networking, SD-WAN, Network function virtualization, and 5G network slicing Initially, cellular mobile communications technologies were designed in the context of providing voice services and Internet access. Today a new era of innovative tools and
technologies is inclined towards developing a new pool of applications. This pool of applications consists of different domains such as the Internet of Things (IoT), web of connected autonomous vehicles, remotely controlled robots, and heterogeneous sensors connected to serve versatile applications. [128] In this context, network slicing has emerged
as a key technology to efficiently embrace this new market model. [129] The 5G Service-Based architecture of the Evolved Packet Core that is used in 4G. The SBA breaks up the core functionality of the network functions (NFs), which are typically implemented as Cloud-Native
Network Functions. These NFs register with the Network Repository Function (NRF) which maintains their state, and communicate with each other using the Service Communication Proxy (SCP). The interfaces between the elements all utilize RESTful APIs.[130] By breaking functionality down this way, mobile operators are able to utilize different
infrastructure vendors for different functions, and the flexibility to scale each function AUSF MME / HSS (Authentication) Access and Mobility Management Function AMF MME Unstructured Data Storage
Function UDSF N/A Network Exposure Function NEF N/A Network Slice Specific Authentication and Authorization Function NSSAAF N/A Network Slice Specific Authentication Function NSSAAF N/A Netw
UDR HSS (User Database) User Plane Function UPF SGW-U / PGW-U UE radio Capability Management Function CHF CSCF In addition, the standard describes network entities for roaming and inter-network connectivity, including the
Security Edge Protection Proxy (SEPP), the Non-3GPP InterWorking Function (N3IWF), the Trusted WLAN Interworking Function (TWIF), the Wireline Access Gateway Function (W-AGF), and the Trusted WLAN Interworking Function (TWIF).
techniques for 5G NR have changed from Turbo codes in 4G to polar codes for the control channels and LDPC (low-density parity check codes) for the data channels and LDPC (low-density parity 
for LTE in unlicensed spectrum. 5G wireless power is a technology based on 5G standards that transfers wireless power. [135][136] It adheres to technical standards set by the 3rd Generation Partnership Project, the International Telecommunication Union, and the Institute of Electrical and Electronics Engineers. It utilizes extremely high frequency
radio waves with wavelengths from one to ten millimeters, also known as mmWaves.[137][138] Up to 6μW of power has been demonstrated being captured from 5G signals at a distance of 180m by researchers at Georgia Tech.[135] Internet of things devices could benefit from 5G wireless power technology, given their low power requirements that
are within the range of what has been achieved using 5G power capture. [139] See also: Concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Criticism of Huawei § Espionage and Security concerns over Chinese involvement in 5G wireless networks and Chinese involvement in 5G wireless networks and Chinese involvement in 5G wireless networks and Chinese involvement in 5G wireless networks networks and Chinese involvement in 5G wirele
report warns against using a single supplier for a carrier's 5G infrastructure, especially those based outside the European Union; Nokia and Ericsson are the only European manufacturers of 5G equipment.[140] On October 18, 2018, a team of researchers from ETH Zurich, the University of Lorraine and the University of Dundee released a paper
entitled, "A Formal Analysis of 5G Authentication".[141][142] It alerted that 5G technology could open ground for a new era of security threats. The paper described the technology as "immature and insufficiently tested," and one that "enables the movement and access of vastly higher quantities of data, and thus broadens attack surfaces".
Simultaneously, network security companies such as Fortinet, [143] Arbor Networks, [144] A10 Networks, [145] and Voxility [146] advised on personalized and mixed security deployments against massive DDoS attacks foreseen after 5G deployment. IoT Analytics estimated an increase in the number of IoT devices, enabled by 5G technology, from 7 technology.
billion in 2018 to 21.5 billion by 2025.[147] This can raise the attack surface for these devices to a substantial scale, and the capacity for DDoS attacks, cryptojacking, and other cyberattacks could boost proportionally.[142] In addition, the EPS solution for 5G networks has identified a design vulnerability affects the operation of these devices to a substantial scale, and the capacity for DDoS attacks, cryptojacking, and other cyberattacks could boost proportionally.
device during cellular network switching. [148] Due to fears of potential espionage of users of Chinese equipment vendors, several countries (including the United States, Australia and the United Kingdom as of early 2019) [149] have taken actions to restrict or eliminate the use of Chinese equipment in their respective 5G networks. A 2012 U.S. House
Permanent Select Committee on Intelligence report concluded that using equipment made by Huawei and ZTE, another Chinese telecommunications company, could "undermine core U.S. national security interests".[150] In 2018, six U.S. intelligence chiefs, including the directors of the CIA and FBI, cautioned Americans against using Huawei
products, warning that the company could conduct "undetected espionage".[151] Further, a 2017 investigation by the FBI determined that Chinese wendors and the Chinese government have denied claims of espionage, but experts have pointed out that
Huawei would have no choice but to hand over network data to the Chinese government if Beijing asked for it because of Chinese National Security Law.[153] In August 2020, the U.S. State Department launched "The Clean Network" as a U.S. government-led, bi-partisan effort to address what it described as "the long-term threat to data privacy,
security, human rights and principled collaboration posed to the free world from authoritarian malign actors". Promoters of the initiative have stated that it has resulted in an "alliance of democracies and companies", "based on democratic values". On October 7, 2020, the UK Parliament's Defence Committee released a report claiming that there was
clear evidence of collusion between Huawei and Chinese state and the Chinese Communist Party. The UK Parliament's Defence Communist Party. The UK Parliament from its 5G networks earlier than planned.[154] In December 2020, the United States announced that more than 60 nations
representing more than two thirds of the world's gross domestic product, and 200 telecom companies, had publicly committed to the principles of the 27 EU members, 31 of the 37 OECD nations, 11 of the 12 Three Seas nations as well as Japan, Israel
Australia, Singapore, Taiwan, Canada, Vietnam, and India. Parts of this article (those related to 5G, short for the fifth generation of wireless technology, employs a range of higher-frequency radio waves than its predecessors.) need to be updated. Please help update this article to reflect recent events or newly available information. (January 2022) The
spectrum used by various 5G proposals, especially the n258 band centered at 26 GHz, will be near that of passive remote sensing such as by weather and Earth observation satellites, particularly for water vapor monitoring at 23.8 GHz.[155] Interference is expected to occur due to such proximity and its effect could be significant without effective
controls. An increase in interference already occurred with some other prior proximate band usages.[156][157] Interference to satellite operations impairs numerical weather prediction performance with substantially deleterious economic and public safety impacts in areas such as commercial aviation.[158][159] The concerns prompted U.S.
Secretary of Commerce Wilbur Ross and NASA Administrator Jim Bridenstine in February 2019 to urge the FCC to delay some spectrum auction proposals, which was rejected. [160] The chairs of the House Appropriations Committee and House Science Committee wrote separate letters to FCC chairman Ajit Pai asking for further review and
consultation with NOAA, NASA, and DoD, and warning of harmful impacts to national security.[161] Acting NOAA director Neil Jacobs testified before the House Committee in May 2019 that 5G out-of-band emissions could produce a 30% reduction in weather forecast accuracy and that the resulting degradation in ECMWF model performance would
have resulted in failure to predict the track and thus the impact of Superstorm Sandy in 2012. The United States Navy in March 2019 wrote a memorandum warning of deterioration and fielding, and for coordination of the wireless industry and regulators with weather
forecasting organizations.[162] At the 2019 quadrennial World Radiocommunication Conference (WRC), atmospheric scientists advocated for a strong buffer of -55 dBW, European regulators agreed on a recommendation of -42 dBW, and US regulators (the FCC) recommended a restriction of -20 dBW, which would permit signals 150 times
stronger than the European proposal. The ITU decided on an intermediate -33 dBW until September 1, 2027, and after that a standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the European recommendation but even the delayed higher standard of -39 dBW.[163] This is closer to the European recommendation but even the
Meteorological Organization (WMO) that the ITU standard, at 10 times less stringent than its recommendation, brings the "potential to significantly degrade the accuracy of data collected".[164] A representative of the American Meteorological Society (AMS) also warned of interference, [165] and the European Centre for Medium-Range Weather
Forecasts (ECMWF), sternly warned, saying that society risks "history repeat[ing] itself" by ignoring atmospheric scientists' warnings (referencing global warming, monitoring of which could be imperiled).[166] In December 2019, a bipartisan request was sent from the US House Science Committee to the Government Accountability Office (GAO) to
investigate why there is such a discrepancy between recommendations of US civilian and military science agencies and the regulator, the FCC.[167] The United States FAA has warned that radar altimeters on aircraft, which operate between 4.2 and 4.4 GHz, might be affected by 5G operations between 3.7 and 3.98 GHz. This is particularly an issue
with older altimeters using RF filters[168] which lack protection from neighboring bands.[169] This is not as much of an issue in Europe, where 5G uses lower frequencies between 3.4 and 3.8 GHz.[170] Nonetheless, the DGAC in France has also expressed similar worries and recommended 5G phones be turned off or be put in airplane mode during
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flights.[171] On December 31, 2021, U.S. Transportation Secretary Pete Buttigieg and Steve Dickinson, administrator of the Federal Aviation concerns. The government officials asked for a two-week delay starting on January 5, 2022, while
 investigations are conducted on the effects on radar altimeters. The government transportation officials also asked the cellular providers to hold off their new 5G service near 50 priority airports, to minimize disruption to air traffic that would be caused by some planes being disallowed from landing in poor visibility.[172] After coming to an agreement
with government officials the day before,[173] Verizon and AT&T activated their 5G networks on January 19, 2022, except for certain towers near 50 airports.[174] AT&T scaled back its deployment even further than its agreement with the FAA required.[175] The FAA rushed to test and certify radar altimeters for interference so that planes could be
allowed to perform instrument landings (e.g. at night and in low visibility) at affected airports. By January 16, it had certified equipment on 45% of the U.S. fleet, and 78% by January 20.[176] Airlines completence of the FAA.[177]
 Several international airlines substituted different planes so they could avoid problems landing at scheduled airports, and about 2% of flights (320) were cancelled by the evening of January 19.[178] Further information: C band (IEEE) A number of 5G networks deployed on the radio frequency band of 3.3-3.6 GHz are expected to cause interference
 with C-Band satellite stations, which operate by receiving satellite signals at 3.4-4.2 GHz frequency.[179] In regions like the US and EU, the 6 GHz band is to be opened up for unlicensed applications, which would permit the deployment of 5G-NR
 Unlicensed, 5G version of LTE in unlicensed spectrum, as well as Wi-Fi 6e. However, interference could occur with the co-existence of different standards in the frequency band. [180] There have been concerns surrounding the promotion of 5G, questioning whether the technology is overhyped. There are questions on whether 5G will truly change them.
 customer experience,[181] ability for 5G's mmWave signal to provide significant coverage,[182][183] overstating what 5G can achieve or misattributing continuous technological improvement to "5G",[184] lack of new use case for carriers to profit from,[185] wrong focus on emphasizing direct benefits on individual consumers instead of for Internet of
 Things devices or solving the last mile problem, [186] and overshadowing the possibility that in some aspects there might be other more appropriate technologies. [187] Such sort of concerns have also led to consumers not trusting information provided by cellular providers on the topic. [188] Main article: 5G misinformation Further information:
 Wireless device radiation and health There is a long history of fear and anxiety surrounding wireless signals that predates 5G technology. The fears about 5G are similar to those that have persisted throughout the 1990s and 2000s. According to the US Centers for Disease Control and Prevention (CDC) "exposure to intense, direct amounts of non-
ionizing radiation may result in damage to tissue due to heat. This is not common and mainly of concern in the workplace for those who work on large sources of non-ionizing radiation devices and instruments."[189] Some advocates of fringe health claim the regulatory standards are too low and influenced by lobbying groups.[190] An anti-5G sticker
in Luxembourg There have been rumors that 5G mobile phone use can cause cancer, but this is a myth.[191] Many popular books of dubious merit have been published on the subject[additional citation(s) needed] including one by Joseph Mercola alleging that wireless technologies caused numerous conditions from ADHD to heart diseases and brain
cancer. Mercola has drawn sharp criticism for his anti-vaccinationism during the COVID-19 pandemic and was warned by the Food and Drug Administration to stop selling fake COVID-19 cures through his online alternative medicine business. [190][192] According to The New York Times, one origin of the 5G health controversy was an erroneous
unpublished study that physicist Bill P. Curry did for the Broward County School Board in 2000 which indicated that the absorption of external microwaves by brain tissue increased with frequency microwaves because they cannot
penetrate the skin and reach internal organs. Curry had confused in vitro and in vivo research. However Curry's study was widely distributed on the Internal organs. Curry had confused in vitro and in vivo research. However Curry's study was widely distributed on the Internal organs. Curry had confused in vitro and in vivo research. However Curry's study was widely distributed on the Internal organs. Curry had confused in vitro and in vivo research. However Curry's study was widely distributed on the Internal organs.
 cancer, infertility, autism, heart tumors, and Alzheimer's disease". Broad asserted that the claims had increased. RT America had run seven programs on this theme by mid-April 2019 but only one in the whole of 2018. The network's coverage had spread to hundreds of blogs and websites.[194] In April 2019, the city of Brussels in Belgium blocked a
5G trial because of radiation rules.[195] In Geneva, Switzerland, a planned upgrade to 5G was stopped for the same reason.[196] The Swiss Telecommunications Association (ASUT) has said that studies have been unable to show that 5G frequencies have any health impact.[197] According to CNET,[198] "Members of Parliament in the Netherlands" and the same reason.[196] The Swiss Telecommunications are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" and the same reason.[196] The Swiss Telecommunications are considered as a stopped for the same reason.[197] and the same reason.[198] "Members of Parliament in the Netherlands" and the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason.[198] "Members of Parliament in the Netherlands" are considered as a stopped for the same reason
are also calling on the government to take a closer look at 5G. Several leaders in the United States Congress have written to the Federal Communications Commission expressing concern about potential health risks. In Mill Valley, California, the city council blocked the deployment of new 5G wireless cells."[198][199][200][201][202] Similar concerns
 were raised in Vermont[203] and New Hampshire.[198] The US FDA is quoted saying that it "continues to believe that the current safety limits for cellphone radiofrequency energy exposure remain acceptable for protecting the public health".[204] After campaigning by activist groups, a series of small localities in the UK, including Totnes, Brighton
and Hove, Glastonbury, and Frome, passed resolutions against the implementation of further 5G infrastructure, though these resolutions have no impact on rollout plans. [208] Vian et al., 2006 finds an effect of microwave on gene expression in plants. [208] A meta-analysis of
95 in vitro and in vivo studies showed that an average of 80% of the in vivo research showed effects of such radiation, as did 58% of the in vitro research, but that the results were inconclusive as to whether any of these effects pose a health risk. [209] Main article: COVID-19 misinformation § 5G mobile-phone networks The World Health Organization
published a mythbuster infographic to combat the covID-19 and 5G As the introduction of 5G technology coincided with the time of the COVID-19 and 5G.[210] This has led to dozens of arson attacks being made on telecom masts in
the Netherlands (Amsterdam, Rotterdam, etc.), Ireland (Cork,[211] etc.), Cyprus, the United Kingdom (Dagenham, Huddersfield, Birmingham, Belfast and Liverpool),[212][213] Belgium (Pelt), Italy (Maddaloni), Croatia (Bibinje)[214] and Sweden.[215] It led to at least 61 suspected arson attacks against telephone masts in the United Kingdom
 alone[216] and over twenty in The Netherlands. In the early months of the pandemic, anti-lockdown protesters at protests over responses to the COVID-19 pandemic in Australia were seen with anti-5G signs, an early sign of what became a wider campaign by conspiracy theorists to link the pandemic with 5G technology. There are two versions of the
5G-COVID-19 conspiracy theory:[190] The first version claims that radiation weakens the immune system, making the body more vulnerable to SARS-CoV-2 (the virus that causes COVID-19). The second version claims that 5G causes COVID-19. There are different variations on this. Some claims that the pandemic is coverup of illness caused by 5G
 radiation or that COVID-19 originated in Wuhan because that city was "the guinea-pig city for 5G". Main articles: 5G Evolution, LTE Advanced Pro, and LTE Advanced Pro, and LTE Advanced numerous differently branded technologies, such as "5G".
 Evolution", which advertise improving existing networks with the use of "5G technology".[217] However, these pre-5G networks are an improvement on specifications of existing LTE networks with the use of "5G technology".[217] However, these pre-5G networks are an improvement on specification for our evolution to 5G while
the 5G standards are being finalized", it cannot be considered to be true 5G. When AT&T announced 5G Evolution, 4x4 MIMO, the technology that AT&T is using to deliver the higher speeds, had already been put in place by T-Mobile without being branded with the 5G moniker. It is claimed that such branding is a marketing move that will cause
confusion with consumers, as it is not made clear that such improvements are not true 5G.[218] With the rollout of 5G, 4G has become more available and affordable, with the world's most developed countries having >90% LTE coverage.[219] Because of this, 4G is still not obsolete even today.[220] 4G plans are sold alongside 5G plans on US
carriers,[221] with 4G being cheaper than 5G.[222] This section needs to be updated. Please help update this article to reflect recent events or newly available information. (April 2019) Cellular network standards and generation timeline. In April 2008, NASA partnered with Geoff Brown and Machine-to-Machine Intelligence (M2Mi) Corp to develop a develop a
fifth generation communications technology approach, though largely concerned with manosats. [223] That same year, the South Korean IT R&D program of "5G mobile communication systems based on beam-division multiple access and relays with group cooperation" was formed. [224] In August 2012, New York University founded NYU
 Wireless, a multi-disciplinary academic research centre that has conducted pioneering work in 5G wireless communications. [225] On October 8, 2012, the UK's University of Surrey secured £35M for a new 5G research centre, jointly funded by the British government's UK Research Partnership Investment Fund (UKRPIF) and a consortium of key
international mobile operators and infrastructure providers, including Huawei, Samsung, Telefónica Europe, Rohde & Schwarz, and Aircom International. It will offer testing facilities to mobile operators keen to develop a mobile standard that uses less energy and less radio spectrum, while delivering speeds higher than
current 4G with aspirations for the new technology to be ready within a decade.[226][227][228][229] On November 1, 2012, the EU project "Mobile and wireless communications Enablers for the Twenty-twenty Information Society" (METIS) started its activity toward the definition of 5G. METIS achieved an early global consensus on these systems. In
this sense, METIS played an important role in building consensus among other external major stakeholders prior to global standardization activities. This was done by initiating and addressing work in relevant global fora (e.g. ITU-R), as well as in national and regional regulatory bodies. [230] That same month, the iJOIN EU project was launched,
 focusing on "small cell" technology, which is of key importance for taking advantage of limited and strategic resources, such as the radio wave spectrum. According to Günther Oettinger, the European Commissioner for Digital Economy and Society (2014-2019), "an innovative utilization of spectrum" is one of the key factors at the heart of 5G success
Oettinger further described it as "the essential resource for the wireless connectivity of which 5G will be the main driver".[231] iJOIN was selected by the European Commission as one of the pioneering 5G research projects to showcase early results on this technology at the Mobile World Congress 2015 (Barcelona, Spain). In February 2013, ITU-R
 Working Party 5D (WP 5D) started two study items: (1) Study on IMT Vision for 2020 and beyond, and; (2) Study on future technical aspects of mobile communications toward the definition of the next generation mobile.[232] On May 12, 2013,
 Samsung Electronics stated that they had developed a "5G" system. The core technology has a maximum speed of tens of Gbit/s to a distance of up to 2 kilometers with the use of an 8*8 MIMO.[233][234] In July 2013, India and Israel agreed to work
jointly on development of fifth generation (5G) telecom technologies. [235] On October 1, 2013, NTT (Nippon Telegraph and Communications Award at CEATEC for 5G R&D efforts. [236] On November 6, 2013, Huawei announced plans to
 invest a minimum of $600 million into R&D for next generation 5G networks capable of speeds 100 times higher than modern LTE networks. [237] On April 3, 2019, South Korea became the first country to adopt 5G. [238] Just hours later, Verizon launched its 5G services in the United States, and disputed South Korea's claim of becoming the world's
 first country with a 5G network, because allegedly, South Korea's 5G service was launched initially for just six South Korean celebrities so that South Korean telecommunication companies (SK Telecom, KT, and LG Uplus) added more than 40,000
users to their 5G network on the launch day. [240] In June 2019, the Philippines became the first country in Southeast Asia to roll out a 5G broadband network after Globe Telecom commercially launched its 5G data plans to customers. [241] AT&T brings 5G service to consumers and businesses in December 2019 ahead of plans to offer 5G throughout
the United States in the first half of 2020.[243][244] In 2020, AIS and TrueMove H launched 5G services in Thailand, making it the first country in Southeast Asia to have commercial 5G.[245][246] A functional mockup of a Russian 5G base station, developed by domestic specialists as part of Rostec's digital division Rostec.digital, was presented
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uses, see 1G (disambiguation). "Analog network" redirects here and is not to be confused with Analog modulation. Not to be confused with GPRS, a 2G mobile internet speed displayed as "G" on most Android and iPhone devices. Part of a series on the Wireless network technologies Analog 0G1G (1.5G) Digital 2G (2.5G, 2.75G, 2.9G)3G (3.5G, 3.75G, 3.75G).
3.9G/3.95G)4G (4G/4.5G, 4.5G, 4.9G)5G (5.5G)6G Mobile telecommunications standards, introduced in the 1980s. This generation was characterized by the use of analog audio transmissions, a major distinction from the subsequent 2G networks, which were fully digital. The term "1G"
itself was not used at the time, but has since been retroactively applied to describe the early era of cellular networks. During the 1G era, various regional standards were developed and deployed in different countries, rather than a single global system. Among the most prominent were the Nordic Mobile Telephone (NMT) system and the Advanced
Mobile Phone System (AMPS), which were widely adopted in their respective regions.[1] The lack of a unified global standard resulted in a fragmented landscape, with different countries and regions utilizing different technologies for mobile communication. As digital technology advanced, the inherent advantages of digital systems over analog led to
the eventual replacement of 1G by 2G networks. While many 1G networks were phased out by the early 2000s, some continued to operate into the 2010s, particularly in less developed regions. The antecedent to 1G technology is the mobile radio telephone (i.e. "0G"), where portable phones would connect to a centralised operator. 1G refers to the
very first generation of cellular networks.[2] Cellular network of cells throughout a geographical area using low-power radio transmitters.[1] Cellular network standards and generation timeline. The first commercial cellular network was launched in Japan by Nippon Telegraph and Telephone (NTT) in 1979, initially in the
metropolitan area of Tokyo. The first phone that used this network was called TZ-801 built by Panasonic.[3] Within five years, the NTT network had been expanded to cover the whole population of Japan and became the first nationwide 1G/cellular network. Before the network in Japan, Bell Laboratories built the first cellular network around Chicago
in 1977 and trialled it in 1978.[4] As in the pre-cellular era, the Nordic countries technologies. These countries together designed the NMT standard which first launched in Sweden in 1981.[5] NMT was the first mobile phone network to feature international roaming. In 1983, the first 1G cellular network launched
in the United States, which was Chicago-based Ameritech using the Motorola DynaTAC mobile phone. In the early to mid 1990s, 1G was superseded by newer 2G (second generation) cellular technologies such as GSM and cdmaOne. Although 1G also used digital signaling to connect the radio towers (which listen to the handsets) to the rest of the
telephone system, the voice itself during a call is encoded to digital signals in 2G whereas 1G uses analog FM modulation for the voice transmission, much like a 2-way land mobile radio. Most 1G networks for much longer. The last
operating 1G network was closed down in Russia in 2017. After Japan, the earliest commercial cellular networks launched in 1981 in Sweden, Norway and Saudi Arabia, followed by Denmark, Finland and Spain in 1982, the U.S. in 1983 and Hong Kong, South Korea, Austria and Canada in 1984. By 1986 networks had also launched in Tunisia,
Malaysia, Oman, Ireland, Italy, Luxembourg, Netherlands, United Kingdom, West Germany, France, South Africa, Israel, Thailand, Indonesia, Iceland, Turkey, the Virgin Islands and Australia. [6] Generally, African countries were slower to take up 1G networks, while Eastern European were among the last due to the political situation. [7] In Europe
the United Kingdom had the largest number of cellular subscribers as of 1990 numbering 1.1 million, while the second largest market was Sweden with 482 thousand.[7] Although Japan was the first country with a nationwide cellular network, the number of users was significantly lower than other developed economies with a penetration rate of only
0.15 percent in 1989.[5] As of January 1991, the highest penetration rates were in Sweden and Finland with both countries above 50 percent. In most other European countries it was below 10 percent. [8] Analog cellular technologies that were used were: [6]
Advanced Mobile Phone System (AMPS)[9] Nordic Mobile Telephone (NMT) Total Access Communication System (TACS) developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the world C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and also some other parts of the World C-450 developed in the United Kingdom and Albard C-450 developed in the United Kingdom and Alb
MCS-L2 (developed by NTT) in Japan[10] JTACS (a variant of TACS operated by Daini Denden Planning, Inc. (DDI)) in Japan[10] List of mobile phone generations 2G 3G 3.5G 4G 4.5G 5G 6G Wireless Application Protocol Wireless device radiation and health ^ a b "Chapter 3 - Technology". Wireless Communications in Developing Counties (PDF).
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Germany and China: A Comparative Study from the Perspective of the Resource Based View. Univerlagtuberlin. ISBN 9783798320574. Glossary: Detailed Description on 1G Technology Preceded by OG Mobile Telephony Generations Succeeded by OG Retrieved from "4First generation of digital
cellular networks For other uses, see 2G (disambiguation). Part of a series on the Wireless network technologies Analog 0G1G (1.5G) Digital 2G (2.5G, 2.75G, 2.9G)3G (3.5G, 3.95G)4G (4G/4.5G, 4.5G, 4.9G)5G (5.5G)6G Mobile telecommunications telecommunications telecommunication for the second-generation of cellular network technology, which were rolled out
globally starting in the early 1990s. The main differentiator to previous mobile telephone systems, retrospectively dubbed 1G, is that the radio signals of 2G networks are digital rather than analog, for communication between mobile devices and base stations. In addition to voice telephony, 2G also made possible the use of data services. The most
common 2G technology has been the GSM standard, which became the first globally adopted framework for mobile communications. Other 2G technologies include cdmaOne and the now-discontinued Digital AMPS (D-AMPS/TDMA),[1] as well the Personal Digital Cellular (PDC) and Personal Handy-phone System (PHS) in Japan. The transition to
digital technology enabled the implementation of encryption for voice calls and data transmission, significantly improving the security of mobile communications while also increasing capacity and efficiency compared to earlier analog systems. 2G networks were primarily designed to support voice calls and Short Message Service (SMS), with later
 advancements such as General Packet Radio Service (GPRS) enabling always-on packet data services, including email and limited internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded mobile internet access. 2G was succeeded by 3G technology, which provided higher data transfer rates and expanded higher data transfer access. 2G was succeeded by 3G technology and expanded higher data transfer access
Eryaman filed a patent for a digital mobile phone that supports the transmission of digital mobile phones. [2] 2G was first commercially launched in 1991 by Radiolinja (now part of Elisa Oyj) in Finland in the form of GSM, which was defined by
the European Telecommunications Standards Institute (ETSI).[3] The Telecommunications Industry Association (TIA) defined the cdmaOne (IS-95) 2G standard, with an eight to ten fold increase in voice call capacity compared to analog AMPS.[4] The first deployment of cdmaOne was in 1995.[5] In North America, Digital AMPS (IS-54 and IS-136) and
cdmaOne (IS-95) were dominant, but GSM was also used. Later 2G releases in the GSM space, often referred to as 2.5G and 2.75G, include General Packet Radio Service (GPRS) and Enhanced Data Rates for GSM Evolution (EDGE).
capacity, providing a theoretical maximum transfer speed of 384 kbit/s (48 kB/s). Three primary benefits of 2G networks over their 1G predecessors were: Digitally encrypted phone conversations, at least between the mobile phone and the cellular base station but not necessarily in the rest of the network. Significantly more efficient use of the radio
frequency spectrum enabling more users per frequency band. Data services for mobile, starting with SMS text messages then expanding to Multimedia Messaging Service (MMS). Cellular network standards and generation timeline. (Large titles on the colored area refer to the lines to their right. Main article: GPRS 2.5G ("second-and-a-half
generation") refers to 2G systems that incorporate a packet-switched domain alongside the existing circuit-switched domain, most commonly implemented through General Packet Radio Service (GPRS).[6] GPRS enables packet-based data transmission by dynamically allocating multiple timeslots to users, improving network efficiency. However, this
does not inherently provide faster speeds, as similar techniques, such as timeslot bundling, are also employed in circuit-switched data services like High-Speed Circuit-switched Data (HSCSD). Within GPRS-enabled 2G systems, the theoretical maximum transfer rate is 40 kbit/s (5 kB/s).[7] Main article: EDGE (telecommunication) 2.75G refers to the
evolution of GPRS networks into EDGE (Enhanced Data Rates for GSM Evolution) networks, achieved through the introduction of 8PSK (8 Phase Shift Keying) encoding. While the symbol to carry three bits instead of one, significantly increasing data
transmission efficiency. Enhanced Data Rates for GSM Evolution (EDGE), also known as Enhanced GPRS (EGPRS) or IMT Single Carrier (IMT-SC), is a backward-compatible digital mobile phone technology built as an extension to standard GSM. First deployed in 2003 by AT&T in the United States, EDGE offers a theoretical maximum transfer speed
of 384 kbit/s (48 kB/s).[7] Evolved EDGE (also known as EDGE Evolution or 2.875G) is an enhancement of the EDGE mobile technology that was introduced as a late-stage upgrade to 2G networks. While EDGE was first deployed in the early 2000s as part of GSM networks, Evolved EDGE was launched much later, coinciding with the widespread
 adoption of 3G technologies such as HSPA and just before the emergence of 4G networks. This timing limited its practical application. Evolved EDGE increased data throughput and reduced latencies (down to 80 ms) by utilizing improved modulation techniques, dual carrier support, dual antennas, and turbo codes. It achieved peak data rates of up to
1 Mbit/s, significantly enhancing network efficiency for operators that had not yet transitioned to 3G or 4G infrastructures. However, despite its technical improvements, Evolved EDGE was never widely deployed. By the time it became available, most network operators were focused on implementing more advanced technologies like UMTS and LTE.
As of 2016, no commercial networks were reported to support Evolved EDGE. See also: GSM § Discontinuation 2G, understood as GSM and CdmaOne, has been superseded by newer technologies such as 3G (UMTS / CDMA2000), 4G (LTE / WiMAX) and 5G (5G NR). However, 2G networks were still available as of 2023[update] in most parts of the
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world, while notably excluding the majority of carriers in North America, East Asia, and Australasia.[8][9][10] Many modern LTE-enabled devices have the ability to fall back to 2G for phone calls, necessary especially in rural areas where later generations have not yet been implemented.[11] In some places, its successor 3G is being shut down rather
than 2G - Vodafone previously announced that it had switched off 3G across Europe in 2020 but still retains 2G as a fallback service. [12] In the US T-Mobile shut down their 3G services while retaining their 2G GSM network. [13][14] Various carriers have made announcements that 2G technology in the United States, Japan, Australia, and other
countries are in the process of being shut down, or have already shut down already shut down, or have already shut down already s
in crime.[19] Attack routes on 2G CdmaOne were found later and remain less publicized.[20] Android 12 and later can disable 2G connectivity by enabling Lockdown Mode.[22] In some parts of the world, including the United Kingdom, 2G remains widely used for
 older feature phones and for internet of things (IoT) devices such as smart meters, eCall systems and vehicle trackers to avoid the high patent licensing cost of newer technologies. [23] Terminating 2G services could leave vulnerable people who rely on 2G infrastructure unable to communicate even with emergency contacts, causing harm and possibly
deaths.[24] Country Status Network Shutdown date Standard Notes Åland Ålcom 2024 GSM 2G availability cannot be guaranteed after 1 Jan 2022, all stations are planned to be shut down in 2024.[25] Anguilla Digicel active GSM 900 MHz: 5 MHz UMTS1900 MHz: 5 MHz UMTS1900 MHz: 5 MHz UMTS1900 MHz: 5 MHz UMTS [26][27][28][29] FLOW 2024-04-22 GSM [30][31]
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12 MHz GSM [54] FLOW 2024-04-22 GSM Belgium Orange 2030 GSM [55] Telenet 2027 GSM [56] Proximus 2027 GSM [57] Bermuda Digicel active GSM 1900 MHz: 5 MHz LTE [58] Bonaire partiallyunconfirmed Digicel 2025-03-31 GSM FLOW 2024-04-22 GSM British
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GSM Guam unconfirmed GTA Teleguam? GSM Hong Kong 3 2008-11-20 cdmaOne Shut down due to license expiry. Government later reversed the decision and held an auction for CDMA2000 service, which PCCW-HKT won the auction and provided
CDMA2000 service immediately after 3's license expiry. 3 2021-09-30 GSM [92] CMHK active GSM 1800 MHz only CSL 2017-10-31 cdmaOne
Service previously provided by PCCW. After acquisition of CSL by HKT, its mobile business PCCW Mobile was merged into CSL. No service for local customers, only served incoming roaming tourists. CSL terminated along with
cdmaOne.[93] CSL 2024-11-08 GSM [94] SmarTone 2022-10-14 GSM [95] Iceland Nova 2025-01-28 GSM [96] Síminn 2025 GSM Per government statement.[101] Jamaica No Service Digicel 2024-08-31 GSM [102][103] FLOW 2024-04-15 GSM [104][103]
[105] Japan No Service au KDDI 2012-07-22 cdmaOne [106] NTT Docomo 2012-03-31 PDC [107] Softbank 2010-03-31 PDC [108] Jordan Umniah 2021-03-11 GSM [55] Macau No Service for local customers terminated on 4 Jun 2015, but remained for roaming users.[110][111]
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FLOW (UTS) 2017-09-26 GSM [134] Slovakia Orange 2030 GSM [55] South Africa TBD GSM Per government statement.[135][136] South Korea No Service has also terminated.[137] LG Uplus 2021-06-30 cdmaOne CDMA2000 1xRTT, EV-DO Rev. A/B (3G) service has also
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  Switzerland No Service Salt 2020-12-31 GSM Shutdown commenced on 1 Jul 2020. A few single 2G-only sites remained until Sep 2023 to preserve CSFB functionality.[145][146][147] Sunrise 2023-01-03 GSM With the introduction of S-RAN in 2018 phaseout was previously postponed to 2022.[148][149][150] Swisscom 2021-04-07 GSM Official
 shutdown on 31 Dec 2020 (guaranteed availability).[151][152][153] Taiwan No Service Chunghwa Telecom 2017-06-30 GSM [154] Trinidad and Tobago Digicel 2024-12-31 GSM [155][156][157] bmobile (TSTT) TBD GSM 850 MHz: 2.5 MHz GSM + 5 MHz UMTS [158][159]
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Preceded by1st Generation (1G) Mobile Telephony Generation Succeeded by3rd Generation (3G) Retrieved from "5Third generation (4G) Retrieved from "5Third generation of wireless mobile telecommunications technology For other uses, see 3G (disambiguation). This article needs to be updated. Please help update this article to reflect recent events or newly available information. (April
2021) A USB modem for 3G plugged into a laptop. Part of a series on the Wireless network technologies Analog 0G1G (1.5G) Digital 2G (2.5G, 2.75G, 2.9G)3G (3.5G, 3.75G, 3.9G/3.95G)4G (4G/4.5G, 4.9G)5G (5.5G)6G Mobile telecommunicationsvte 3G refers to the third-generation of cellular network technology. These networks were rolled out
beginning in the early 2000s and represented a significant advancement over the second-generation (2G), particularly in terms of data transfer speeds and mobile internet capabilities. The major 3G standards are UMTS (developed by 3GPP, succeeding GSM) and CDMA2000 (developed by Qualcomm, succeeding cdmaOne);[1][2] both of these are
based on the IMT-2000 specifications established by the International Telecommunication Union (ITU). While 2G networks such as GPRS and EDGE supported limited data services, 3G introduced significantly higher-speed mobile internet and enhanced multimedia capabilities, in addition to improved voice quality.[3] It provided moderate internet
speeds suitable for general web browsing and multimedia content including video calling and mobile TV,[3] supporting services that provide an information transfer rate of at least 144 kbit/s.[4][5] Later 3G releases, often referred to as 3.5G (HSPA+) as well as EV-DO, introduced important improvements, enabling 3G networks to
offer mobile broadband access with speeds ranging from several Mbit/s. up to 42 Mbit/s.[6] These updates improved the reliability and speed of internet browsing, video streaming, and online gaming, enhancing the overall user experience for smartphones and mobile modems in comparison to earlier 3G technologies. 3G was later succeeded by 4G
technology, which provided even higher data transfer rates and introduced advancements in network performance. A new generation of 1G systems in 1979. Each generation is defined by the introduction of new frequency bands, higher data rates, and transmission
technologies that are not backward-compatible due to the need for significant changes in network architecture and infrastructure. Several telecommunications companies marketed wireless mobile Internet services as 3G, indicating that the advertised service was provided over a 3G wireless network. However, 3G services have largely been
supplanted in marketing by 4G and 5G services in most areas of the world. Services advertised as 3G are required to meet IMT-2000 technical standards, including standards for reliability and speed (data transfer rates). To meet the IMT-2000 technical standards, including standards, including standards for reliability and speed (data transfer rates). To meet the IMT-2000 technical standards, including standards for reliability and speed (data transfer rates).
144 Kbps.[5] However, many services advertised as 3G provide higher speed than the minimum technical requirements for a 3G service.[7] Subsequent 3G releases, denoted 3.5G and 3.75G, provided mobile broadband access of several Mbit/s for smartphones and mobile modems in laptop computers.[8] 3G branded standards: The UMTS (Universal
Mobile Telecommunications System) system, standardized by 3GPP in 2001, was used in Europe, Japan, China (with a different radio interface) and other regions predominated by GSM (Global Systems for Mobile Communications) 2G system infrastructure. The cell phones are typically UMTS and GSM hybrids. Several radio interfaces are offered,
 sharing the same infrastructure: The original and most widespread radio interface is called W-CDMA (Wideband Code Division Multiple Access). The TD-SCDMA radio interface was commercialized in 2009 and only offered in China. The latest UMTS release, HSPA+, can provide peak data rates up to 56 Mbit/s in the downlink in theory (28 Mbit/s in
existing services) and 22 Mbit/s in the uplink. The CDMA2000 system, first offered in 2002, standardized by 3GPP2, used especially in North America and South Korea, sharing infrastructure with the IS-95 2G standard. The cell phones are typically CDMA2000 and IS-95 hybrids. The latest release EVDO Rev. B offers peak rates of 14.7 Mbit/s
downstream. The 3G systems and radio interfaces are based on spread spectrum radio transmission technology. While the GSM EDGE standards formally also fulfill the IMT-2000 requirements and are approved as 3G standards by ITU, these are typically not branded as 3G and are based
on completely different technologies. The common standards complying with the IMT2000/3G standard are: EDGE, a revision by the 3GPP organization to the older 2G GSM based transmission methods, which utilizes the same switching nodes, base station sites, and frequencies as GPRS, but includes a new base station and cellphone RF circuits. It is
based on the three times as efficient 8PSK modulation scheme as a supplement to the original GMSK modulation scheme. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE is still used extensively due to its extensive and additional additional and additional additional and additional addition
just like the original UMTS WCDMA versions and thus formally fulfill the IMT2000 requirements on 3G systems. However, in practice, EDGE is seldom marketed as a 3G system, but it is difficult to reach much higher peak data
 rates due to the limited GSM spectral bandwidth of 200 kHz, and it is thus a dead end. EDGE was also a mode in the IS-136 TDMA system, no longer used. Evolved EDGE, the latest revision, has peaks of 1 Mbit/s downstream and 400 kbit/s upstream but is not commercially used. The Universal Mobile Telecommunications System, created and revised
by the 3GPP. The family is a full revision from GSM in terms of encoding methods and hardware, although some GSM sites can be retrofitted to broadcast in the UMTS/W-CDMA format. W-CDMA is the most common deployment, commonly operated on the 2,100 MHz band. A few others use the 850, 900, and 1,900 MHz bands. HSPA is an
amalgamation of several upgrades to the original W-CDMA standard and offers speeds of 14.4 Mbit/s down and 5.76 Mbit/s in the downlink and 22 Mbit/s in the
uplink, using a combination of air interface improvements as well as multi-carrier HSPA and MIMO. Technically though, MIMO and DC-HSPA can be used without the "+" enhancements of HSPA+. The CDMA2000 system, or IS-2000, including CDMA2000 1x and CDMA2000 High Rate Packet Data (or EVDO), standardized by 3GPP2 (differing from the
3GPP), evolving from the original IS-95 CDMA system, is used especially in North America, China, India, Pakistan, Japan, South Korea, Southeast Asia, Europe, and Africa. CDMA2000 1x Rev. E has an increased voice capacity (by three times the original amount) compared to Rev. 0 EVDO Rev. B offers downstream peak rates of 14.7 Mbit/s while Rev.
C enhanced existing and new terminal user experience. While DECT cordless phones and Mobile WiMAX standards formally also fulfill the IMT-2000 requirements, they are not usually considered due to their rarity and unsuitability for usage with mobile phones. [9] The 3G (UMTS and CDMA2000) research and development projects started in 1992. In
1999, ITU approved five radio interfaces for IMT-2000 as a part of the ITU-R M.1457 Recommendation; WiMAX was added in 2007.[10] There are evolutionary standards (EDGE and CDMA) that are backward-compatible extensions to pre-existing 2G networks as well as revolutionary standards that require all-new network hardware and frequency
 allocations. The cell phones use UMTS in combination with 2G GSM standards and bandwidths, but do not support EDGE. The latter group is the UMTS family, which were included because they fit the IMT-2000 definition. While
EDGE fulfills the 3G specifications, most GSM/UMTS phones report EDGE ("2.75G") and UMTS ("3G") functionality.[11] Cellular network standards and generation timeline. 3G technology was the result of research and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and ITU ("3G") functional Telecommunication Union (ITU) in the early 1980s. 3G specifications and ITU ("3G") functional Telecommunication Union (ITU) in the early 1980s. 3G specifications and ITU ("3G") functional Telecommunication Union ("3G") functional Telecommunication ("3G") functional 
standards were developed in fifteen years. The technical specifications were made available to the public under the name IMT-2000. The communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication spectrum between 
NTT DoCoMo in Japan in 1998,[12] branded as FOMA. It was first available in May 2001 as a pre-release (test) of W-CDMA technology. The first commercial launch of 3G was also by NTT DoCoMo in Japan on 1 October 2001, although it was initially somewhat limited in scope;[13][14] broader availability of the system was delayed by apparent
concerns over its reliability.[15][16][17][18][19] The first European pre-commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial network (also UMTS base
handsets and thus no paying customers. The first network to go commercially live was by SK Telecom in South Korean 3G network was by KT on EV-DO and thus the South Koreans were the first to see competition among 3G operators. The first
commercial United States 3G network was by Monet Mobile Networks, on CDMA2000 1x EV-DO technology, but the network provider later shut down operations. The second 3G network was by Monet Mobile Network, on CDMA2000 1x EV-DO. AT&T Mobility was also a true 3G UMTS network, having completed its
upgrade of the 3G network to HSUPA. The first commercial United Kingdom 3G network was started by Hutchison Telecom which was originally behind Orange S.A.[20] In 2003, it announced first commercial third generation or 3G mobile phone network in the UK. The first pre-commercial demonstration network in the southern hemisphere was built
in Adelaide, South Australia, by m.Net Corporation in February 2002 using UMTS on 2100 MHz. This was a demonstration network for the 2002 IT World Congress. The first commercial 3G network was launched by Hutchison Telecommunications branded as Three or "3" in June 2003.[21] In India, on 11 December 2008, the first 3G mobile and
internet services were launched by a state-owned company, Mahanagar Telecom Nigam Limited (MTNL), within the metropolitan cities of Delhi and Mumbai. After MTNL, another state-owned company, Bharat Sanchar Nigam Limited (BSNL), began deploying the 3G networks country-wide. Emtel launched the first 3G network in Africa. [22]
Videotelephony through cellular networks were made possible using 3G technologies Japan was one of the first countries to adopt 3G, the reason being the process of 3G spectrum was allocated in the US and Europe based on auctioning, thereby requiring a
huge initial investment for any company wishing to provide 3G services. European companies collectively paid over 100 billion dollars in their spectrum auctions. [23] Nepal Telecom adopted 3G services for the first time in southern Asia. However, its 3G was relatively slow to be adopted in Nepal. In some instances, 3G networks do not use the same
radio frequencies as 2G, so mobile operators must build entirely new networks and license entirely new frequencies, especially for UMTS, whose deployment required the replacement of most broadcast towers.
Due to these issues and difficulties with deployment, many carriers could not or delayed the acquisition of these updated capabilities. In December 2007, 190 3G networks were operating in 40 countries and 154 HSDPA networks were operating in 71 countries and 154 HSDPA networks were operating in 71 countries.
 the US, telecommunication companies use W-CDMA technology with the support of around 100 terminal designs to operate 3G mobile networks. The roll-out of 3G networks was delayed by the enormous costs of additional spectrum licensing fees in some European countries were particularly high, bolstered by
government auctions of a limited number of licenses and sealed bid auctions, and initial excitement over 3G's potential. This led to a telecoms crash that ran concurrently with similar crashes in the fibre-optic and dot.com fields. The 3G standard is perhaps well known because of a massive expansion of the mobile communications market post-2G and
 advances of the consumer mobile phone. An especially notable development during this time is the smartphone (for example, the iPhone, and the Android family), combining the abilities of a PDA with a mobile broadband" because its speed
and capability made it a viable alternative for internet browsing, and USB Modems connecting to 3G networks, and now 4G became increasingly common. By June 2007, the 200 millionth is only 6.7% of the 3 billion mobile phone
 subscriptions worldwide. (When counting CDMA2000 1x RTT customers—max bitrate 72% of the 200 kbit/s which defines 3G—the total size of the nearly-3G subscribers worldwide.) In the countries where 3G was launched first - Japan and South Korea - 3G penetration is over
70%.[24] In Europe the leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country [when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country [when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading country [when?] fo
 subscribers worldwide out of a total of 6835 million subscribers—this is just over 30%. About half the mobile-broadband subscribers in developed nations, 934 million out of 1600 million total, well over 50%. Note however that there is a distinction between a phone with mobile-broadband connectivity and a smart phone with a
large display and so on—although according[26] to the ITU and informatandm.com the US has 321 million mobile subscriptions, including 256 million that are 3G or 4G, which is both 80% of the subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions, including 256 million that are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which is both 80% of the Subscriptions are 3G or 4G, which 80% of the Subscriptions are 3G or 4G, which 80% of the Subscriptions are 3G or 4G, which 80% of the Subscriptions are 3G or 4G, which 80% of the Subscription
reported they owned a smart phone. In Japan, 3G penetration was similar at about 81%, but smart phone ownership was lower at about 17%.[25] In China, there were 486.5 million 3G subscribers in June 2014,[27] in a population of 1,385,566,537 (2013 UN estimate). Since the increasing adoption of 4G networks across the globe, 3G use has been in
 decline. Several operators around the world have already or are in the process of shutting down their 3G networks (see table below). In several places, 3G is being shut down while its older predecessor 2G is being kept in operation; Vodafone UK is doing this, citing 2G's usefulness as a low-power fallback.[28] EE in the UK, plans to switch off their 3G
networks in early 2024.[29] In the US, Verizon shutdown their 3G services on 31 December 2022,[31] and AT&T has done so on 22 February 2022.[32] Currently 3G around the world is declining in availability and support. Technology that
depends on 3G for usage are becoming inoperable in many places. For example, the European Union plans to ensure that member countries maintain 2G networks as a fallback[citation needed], so 3G devices that are backwards compatible with 2G frequencies can continue to be used. However, in countries that plan to decommission 2G networks or
have already done so as well, such as the United States and Singapore, devices supporting only 3G and backwards compatible with 2G are becoming inoperable. [33] As of February 2022, less than 1% of cell phone customers in the United States and Singapore, devices supporting only 3G and backwards compatible with 2G are becoming inoperable.
has been estimated that there are almost 8,000 patents declared essential (FRAND) related to the 483 technical specifications which form the 3GPP and 3GPP2 standards.[35][36] Twelve companies accounted in 2004 for 90% of the patents (Qualcomm, Ericsson, Nokia, Motorola, Philips, NTT DoCoMo, Siemens, Mitsubishi, Fujitsu, Hitachi
InterDigital, and Matsushita). Even then, some patents essential to 3G might not have been declared by their patent holders, It is believed that Nortel and Lucent have undisclosed patents essential to these standards. [36] Furthermore, the existing 3G Patent Platform Partnership Patent pool has little impact on FRAND protection because it excludes
the four largest patent owners for 3G.[37][38] ITU has not provided a clear[39][vague] definition of the data rate that users can expect from 3G equipment or providers. Thus users sold 3G service may not be able to point to a standard and say that the rates it specifies are not being met. While stating in commentary that "it is expected that IMT-2000
will provide higher transmission rates: a minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle,"[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle,"[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle,"[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate of 2 Mbit/s for stationary or walking users, and a moving vehicle, "[40] the ITU does not actually clearly specify minimum data rate o
in the market. In a market implementation, 3G downlink data speeds defined by telecom service providers vary depending on the underlying technology deployed; up to 384 kbit/s for UC-HSPA+ and 42.2 Mbit/s for DC-HSPA+ (technically 3.5G, but usually
clubbed under the tradename of 3G).[citation needed] See also: Mobile security § Attacks based on the GSM networks offer greater security than their 2G predecessors. By allowing the UE (User Equipment) to authenticate the network it is attaching to, the user can be sure the network is the intended one and not an impersonator.[41]
3G networks use the KASUMI block cipher instead of the older A5/1 stream cipher. However, a number of serious weaknesses in the KASUMI cipher have been identified. In addition to the 3G network infrastructure security, end-to-end security is offered when application frameworks such as IMS are accessed, although this is not strictly a 3G
property. The bandwidth and location capabilities introduced by 3G networks enabled a wide range of applications that were previously impractical or unavailable on 2G networks, such as browsing the internet seamlessly while on the move, as well as engaging
in other activities that benefited from faster data speeds and enhanced reliability. Beyond personal communications, as 3G became the first network to enable such
a broad range of use cases.[42] By expanding its functionality beyond traditional mobile phone usage, 3G set the stage for the integration of cellular networks into a wide array of technologies and services, paving the way for further advancements with subsequent generations of mobile networks. Both 3GPP and 3GPP2 are working on the extensions
to 3G standards that are based on an all-IP network infrastructure and using advanced wireless technologies such as MIMO. These specifications already display features characteristic for IMT-Advanced (4G), the successor of 3G. However, falling short of the bandwidth requirements for 4G (which is 1 Gbit/s for stationary and 100 Mbit/s for mobile
operation), these standards are classified as 3.9G or Pre-4G. 3GPP plans to meet the 4G goals with LTE Advanced, whereas Qualcomm has halted UMB development in favour of the LTE family.[43] On 14 December 2009, TeliaSonera announced in an official press release that "We are very proud to be the first operator in the world to offer our
customers 4G services."[44] With the launch of their LTE network, initially they are offering pre-4G (or beyond 3G) services in Stockholm, Sweden and Oslo, Norway. Country Status Network Shutdown date Standard References Notes are offering pre-4G (or beyond 3G) services in Stockholm, Sweden and Oslo, Norway.
28 UMTS [46][47] Telstra 2024-10-28 UMTS [48][49][47] 2100 MHz band shutdown on 25 Mar 2019. TPG / Vodafone 2023-12-31 (est.) UMTS [53] Belgium Orange 2025-12-31 (est.) UMTS [53][54] Local shutdowns commenced in Jan 2024. Telenet 2024-09-30 (est.) UMTS [55] Local shutdowns
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[66][67] Local shutdowns commenced on 16 Mar 2016. China Telecom 2025 (est.) CDMA2000 [68][69][70] CDMA2000 1X, 1xEV-DO Rev. ALocal shutdowns commenced in Q4 2022. Croatia HT 2025 (est.) UMTS [72] Local shutdown commenced in Dec 2023. Czech
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[150] Smartone ceased operations in Macau and returned its license. Malaysia No Service Celcom 2021-12-31 UMTS [153] Umobile 2021-12-31 UMTS [153] [152] Moldova Interdnestrcom 2023-08-01 CDMA2000 [154] Montenegro Crnogorski Telekom 2024-01-22 UMTS [155][156]
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Arizona 2023-05-04 UMTS [241] Commnet Wireless (Choice) 2022-12-31 CDMA2000 [242] Liberty 2022-02-22 UMTS [243] Silver Star 2022-12-31 CDMA2000 [244][245] CDMA2000 [242] Liberty 2022-05-31 CDMA2000 [251]
[247][248][249][252][253] CDMA2000 1X, 1X Adv. (Rev.E), 1xEV-DO Rel. 0, 1xEV-DO Rev. A) shutdown commenced in 2021. Verizon 2022-12-31 CDMA2000 [257][258][259] CDMA2000 1X, 1xEV-DO Rel. 0, 1
 Rev. A Vietnam 2028-09 (est.) [260] per government statement List of mobile phone generations Mobile radio telephone (also known as "0G") Mobile broadband Wireless device radiation and health 1G 2G 4G 5G 6G LTE (telecommunication) ^ "Mobility and Session Management: UMTS vs. CDMA2000" (PDF). IEEE Wireless Communications. August
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are not very useful. It is essential that the large licensees sign up. Examples of pools that have little impact are the 3G Licensing pool (which excludes the four largest IPR owners for 3G) and the 802.11 pool by ViaLicensing pool (which excludes the four largest IPR owners for 3G) and the 802.11 pool by ViaLicensing. ^ "Possible showstoppers" shadow 3G patent pool". eetimes.com. 21 May 1999. Retrieved 24 June 2012. Even so, Qualcomm
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2022. ^ "Báo VietnamNet" (in Vietnamese). VietNamNet News. 18 July 2024. Retrieved 4 March 2025. Media related to 3G at Wikimedia Commons Preceded by 4th Generation (4G) Retrieved from "6Mobile phone specification system project 3rd Generation Partnership Project
2Abbreviation3GPP2TypeStandards organization The 3rd Generation Partnership Project 2 (3GPP2) was a collaboration between telecommunications associations to make a globally applicable third generation (3G) mobile phone system specification within the scope of the ITU's IMT-2000 project. In practice, 3GPP2 was the standardization group for
 December 1998. Ultra Mobile Broadband (UMB) was a 3GPP2 project to develop a fourth-generation successor to CDMA2000. In November 2008, Qualcomm, UMB's lead sponsor, announced it was ending development of the technology, favoring LTE instead.[1] 3GPP2 should not be confused with 3GPP; 3GPP is the standard body behind the
 Universal Mobile Telecommunications System (UMTS) that is the 3G upgrade to GSM networks, while 3GPP2 was the standard body behind the competing 3G standard CDMA2000 that is the 3G upgrade to cdmaOne networks that was used mostly in the United States (and to some extent also in Japan, China, Canada, South Korea and India).
GSM/UMTS were the most widespread 2G/3G wireless standards worldwide. Most countries used only the GSM family. A few countries, including China, the United States, Canada, Ukraine, Trinidad and Tobago, India, South Korea and Japan, used both standards worldwide. Most countries used only the GSM family. A few countries used only the GSM family. A few countries used both standards worldwide. Most countries used only the GSM family. A few countries used on 
3GPP2 website was taken offline in 2023, primarily due to CDMA carriers deploying 3GPP's LTE instead of UMB the decade prior and later shutting down CDMA networks making the 3GPP2 redundant and unneeded. However, as of 2024 the 3GPP2 website has since come back online. ^ Qualcomm halts UMB project, Reuters, 13 November 2008 ^
 "3GPP2 Technology Webinar". 3GPP2 Official Web site About 3GPP2 TIA - U.S. 3GPP2 Standards Developer This article about wireless technology is a stub. You can help Wikipedia by expanding it.vte Retrieved from This article about wireless technology is a stub.
 ago (1998)TypeStandards organizationRegion served WorldwideWebsitewww.3gpp.org The 3rd Generation Partnership Project (3GPP) is an umbrella term for a number of standards organizations which develop protocols for mobile telecommunications. Its best known work is the development and maintenance of:[1] GSM and related 2G and 2.5G
standards, including GPRS and EDGE UMTS and related 3G standards, including HSPA and HSPA+ LTE and related 4G standards, including 5G-Advanced An evolved IP Multimedia Subsystem (IMS) developed in an access independent manner 3GPP is a consortium
 with seven national or regional telecommunication standards organizations as primary members ("organizations as associate members ("market representation partners") and a variety of other organizations as associate members ("market representation partners"). The 3GPP organizations as primary members ("market representation partners") and a variety of other organizations as associate members ("market representation partners").
and Terminals.[2] The project was established in December 1998 with the goal of developing a specification for a 3G mobile phone system based on the 2G GSM system, within the scope of the International Telecommunication Union's International Mobile Telecommunication Union's International Mobile Telecommunication Union's International Telecommunication Union's International Mobile Telecommunication Union's International Union Unio
Generation Partnership Project 2 (3GPP2), which developed a competence Centre") is located at the European Telecommunications Standards Institute headquarters in the Sophia Antipolis technology park in France.[5] The seven 3GPP Organizational
Partners are from Asia, Europe and North America. Their aim is to determine the general policy and strategy of 3GPP and perform the following tasks: The approval and maintenance of the Partnership Project Description; Take the decision to create or cease a Technical Specification Groups, and approve their
scope and terms of reference; The approval of Organizational Partner funding requirements; The allocation of human and financial resources provided by the Organizational Partners to the Project Co-ordination Group; Act as a body of appeal on procedural matters referred to them. Together with the Market Representation Partners (MRPs) perform
the following tasks: The maintenance of the Partnership Project Agreement; The approval of applications for 3GPP partnership; Take the decision against a possible dissolution of Radio Industries and Businesses (ARIB) Japan ARIB
Telecommunication Technology Committee (TTC) Japan TTC The 3GPP organizational Partners can invite a Market Representation Partner to take part in 3GPP, which: Has the ability to offer market advice to 3GPP and to bring into 3GPP
scope; Does not have the capability and authority to define, publish and set standards within the 3GPP scope, nationally or regionally; Has committed itself to all or part of the AGPP scope; Has signed the Partnership Project Agreement. As of January 2025[update], the Market Representation Partners are:[6] Market Representation Partnership Project Agreement.
Organization Website 5G-ACIA 5G Automotive Association 5G Americas Deterministic Network and Services Industry Association (5GSA) 5G Media Action Group (5G-MAG) Automotive Edge Computing Consortium (AECC) Broadband India Forum Cellular Operators Association of Services Industry Association (5GSA) 5G Media Action Group (5G-MAG) Automotive Edge Computing Consortium (AECC) Broadband India Forum Cellular Operators Association of Services Industry Association (5GSA) 5G Media Action Group (5G-MAG) Automotive Edge Computing Consortium (AECC) Broadband India Forum Cellular Operators Association of Services Industry Association (5GSA) 5G Media Action Group (5G-MAG) 5G Media Action G
India (COAI) China Society of Automotive Engineers (CSAE) CTIA Global Satellite Operators Association (GSA) Global Certification Forum TCCA TD Industry Alliance
 Wireless Broadband Alliance 3GPP standards are structured as Releases. Discussion of 3GPP thus frequently refers to the functionality in one release or another. Version[7] Release 96 1997 Q1 GSM Features, 14.4 kbit/s User Data Rate, Release 97 1998 Q1 GSM
 Features, GPRS Release 98 1999 Q1 GSM Features, AMR codec, EDGE, GPRS for PCS1900 Release 99 2000 Q1 Specified the first UMTS 3G networks, incorporating an all-IP Core Network[10] Release 5 2002 Q1 Introduced IMS and HSDPA[11]
 Release 6 2004 Q4 Integrated operation with Wireless LAN networks and adds HSUPA, MBMS, enhancements to IMS such as Push to Talk over Cellular (PoC), GAN[12] Release 7 2007 Q4 Focuses on decreasing latency, improvements to QoS and real-time applications such as VoIP.[13] This specification also focus on HSPA+ (High Speed Packet
Access Evolution), SIM high-speed protocol and contactless front-end interface (Near Field Communication enabling operators to deliver contactless services like Mobile Payments), EDGE Evolution. Release 8 2008 Q4 First LTE release. All-IP Network (SAE). New OFDMA, FDE and MIMO based radio interface, not backwards compatible with
 Backwards compatible with release 8 (LTE). Multi-Cell HSDPA (4 carriers). Release 11 2012 Q3 Advanced IP Interconnection between national operators/carriers as well as third-party application providers. Heterogeneous networks (HetNet) improvements, Coordinated Multi-Point operation (CoMP). In-devices as well as third-party application providers.
Co-existence (IDC). Release 12 2015 Q1 Enhanced Small Cells (higher order modulation, dual connectivity, cell discovery, self configuration), MIMO (3D channel modeling, elevation beamforming, massive MIMO), New and Enhanced Services (cost and range of
MTC, D2D communication, eMBMS enhancements)[14] Release 13 2016 Q1 LTE-Advanced Pro. LTE in unlicensed, LTE enhancements for Machine-Type Communication. Elevation Services (LCS), Mission Critical Data over LTE, Mission
Critical Video over LTE, Flexible Mobile Service Steering (FMSS), Multimedia Broadcast Supplement for TV services over eMBMS, massive Internet of Things, Cell Broadcast Service (CBS)[16] Release 15 2018 Q2 First 5G NR ("New Radio") release. Support for 5G Vehicle-to-x service, IP Multimedia
Core Network Subsystem (IMS), Future Railway Mobile Communication System - Phase 2: 5G enhancements, NR-based access to unlicensed spectrum (NR-U), Satellite access[18] Release 17 2022 Q1 TSG RAN: Several features that continue to be important for overall efficiency and performance of 5G NR:
MIMO, Spectrum Sharing enhancements, UE Power Saving and Coverage Enhancements to the physical layer to support frequency bands up to 71 GHz. TSG SA groups focused on further enhancements to the 5G system and enablers for new features and services:
 Enhanced support of: non-public networks, industrial Internet of Things, low complexity NR devices, edge computing in 5GC, access traffic steering, switch and splitting support, proximity-based services in 5GS, 5G multicast broadcast services, Unmanned
Aerial Systems (UAS), satellite access in 5G, 5GC location services, Multimedia Priority Service, Smart Energy and Infrastructure, Vehicle-
Mounted Relays, Low Power High Accuracy Positioning for industrial IoT scenarios, Enhanced Access to and Support of Network slicing, Satellite backhaul in 5G...[20][21][19] Release 19 [22] 2025 Q4 5G-Advanced. Each release incorporates hundreds of individual Technical Specification and Technical Report documents, each of which may have
been through many revisions. Current 3GPP standards incorporate the latest revision of the GSM standards. The documents are made available without charge on 3GPP's web site. The Technical Specifications cover not only the radio part ("Air Interface") and Core Network, but also billing information and speech coding down to source code level.
Cryptographic aspects (such as authentication, confidentiality) are also specification Groups (WGs).[23] There are three Technical Specification Groups (WGs).[23] There are three Technical Specification Groups (WGs).[24] There are three Technical Specification Groups (WGs).[25] There are three Technical Specification Groups (WGs).[26] There are three Technical Specification Groups (WGs).[27] There are three Technical Specification Groups (WGs).[28] There are three Technical S
UTRAN. It is composed of six working groups. WG Shorthand Scope Specifications RAN WG1 RAN1 Radio Layer 2 and Radio Layer 2 RAN2 WG2 RAN2 RAN2 WG2 RAN2 WG3 RAN3 UTRAN, E-UTRAN, NG-RAN WG4 RAN4 WG4 RAN4 WG4 RAN4 WG4 RAN4 WG4 RAN4 WG4 RAN5 WG4 RAN5 WG4 RAN5 WG5 RAN5
 Radio performance and protocol aspects List of specs SA (Service and System Aspects): SA specifies the service requirements and the overall architecture of the 3GPP system. It is also responsible for the coordination of the project. SA is composed of six working groups. WG
Shorthand Scope Specifications SA WG1 SA1 Services List of specs SA WG2 SA2 Architecture List of specs SA WG3 SA3 Security List of specs SA WG4 SA4 Codec List of specs SA WG3 SA3 Security List of specs SA WG3 SA3 Security List of specs SA WG3 SA3 Security List of specs SA WG4 SA4 Codec List of specs SA WG3 SA3 Security List of specs SA WG4 SA4 Codec List of specs SA WG5 SA5 Management, Orchestration and Charging List of specs SA WG4 SA4 Codec List of specs SA WG5 SA5 Management and Charging List of specs SA WG4 SA4 Codec List of specs SA WG5 SA5 Management, Orchestration and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA WG5 SA5 Management and Charging List of specs SA5 MG5 SA5 Management and Charging List of specs SA5 MG5 SA5
Network and Terminals): CT specifies the core network and terminal parts of 3GPP. It includes the core network - terminal layer 3 protocols. It is composed of five working groups. WG Shorthand Scope Specifications CT WG1 CT1 User Equipment - Core Network protocols List of specs CT WG2 CT2 closed CT WG3 CT3 Interworking with external
networks List of specs CT WG4 CT4 Core Network Protocols List of specs CT WG5 CT5 closed CT WG6 CT6 Smart Card Application Aspects List of specs GERAN (GSM/EDGE system was transferred to RAN WG, RAN6.
 RAN6 was closed in July 2020 (. The 3GPP structure also includes a Project Coordination Group, which is the highest decision-making body. Its missions include the management of overall timeframe and work progress. 3GPP standardization work is contribution-driven. Companies ("individual members") participate through their membership to a
3GPP Organizational Partner. As of December 2020, 3GPP is composed of 719 individual members. [25] Specification work is done at WG and at TSG level: [26] the 3GPP WGs hold several meetings a year. They prepare and discuss change requests against 3GPP specifications. A change request accepted at WG level is called "agreed". the 3GPP TSGs
hold plenary meetings quarterly. The TSGs can "approve" the change requests that were agreed at WG level. Some specifications are under the direct responsibility of TSGs and therefore, change requests that were agreed at WG level. Some specifications are under the direct responsibility of TSGs and therefore, change requests that were agreed at WG level. Some specifications are under the direct responsibility of TSGs and therefore, change requests that were agreed at WG level.
methodology as defined in ITU-T Recommendation I.130:[27] stage 1 specifications define an architecture by specifications define an architecture to support the service requirements. stage 2 specifications define an implementation of the architecture by specifications define an architecture by specifications define an architecture to support the service requirements.
sometimes defined as stage 4, as they follow stage 3. Specifications are grouped into release by specifying freezing dates. Once a release is frozen, only essential corrections are allowed (i.e. addition and modifications of
functions are forbidden). Freezing dates are defined for each stage. The 3GPP specifications are transposed into deliverables by the Organizational Partners. List of mobile phone generations Universal Mobile Telecommunications System (UMTS) 3GPP Long Term Evolution to 3G IP Multimedia Subsystem 3GP 3GPP2 - The 3GPP's
counterpart in the CDMA2000 sphere. GSM services LoRaWAN Telecoms & Internet converged Services & Protocols for Advanced Networks (TISPAN) Open Mobile Alliance Service data adaptation protocol Service layer European Telecommunications Standards Institute ^ 3GPP Scope and Objectives, 31 August 2007 ^ "About 3GPP". 3GPP
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Summary of all Release 5 Features, ETSI Mobile Competence Centre, Version 9 September 2003 ^ Overview of 3GPP Release 6, Summary of all Release 6 Features, Version TSG #31, 3GPP, SP-060232 3GPP TSG SA#31 Sanya, 13-16 March 2006 ^ "Highlights of
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Groups". Archived from the original on 9 May 2011. Retrieved 11 April 2011. ^ closure of GERAN ^ 3GPP membership ^ 3GPP treation Group working methods ^ ITU-T Recommendation I.130 3GPP website 3GPP standards List of Acronyms & Terminology 3GPP freely published, detailed technical specifications 3GPP
 releases descriptions ETSI GSM UMTS 3GPP Numbering Cross Reference TS/TR specification numbering Tool for visualizing multiple inter-related 3gpp standards Tool for visualizing, decoding, encoding network protocol messages defined by 3gpp LTE-3GPP.info: online 3GPP messages decoder fully supporting Rel.15 Retrieved from "8Multimedia
file format families 3GPFilename extension .3gp, .3gppInternet media type video/3gpp, audio/3gppUniform Type Identifier (UTI)public.3gppDeveloped by3GPPInitial release4 April 2003; 22 years ago (2003-04-04)[1]Latest release17.0.0[1]7 April 2022; 3 years ago (2022-04-07) Type of formatContainer formatContainer foraudio, video,
textExtended fromMPEG-4 Part 12Open format?YesFree 
Type of formatContainer formatContainer formatContainer format? YesFree format
ETSI 3GPP technical specification.[1] 3GP is a required file format for video and associated speech/audio media types and timed text in ETSI 3GPP technical specifications for IP Multimedia Broadcast/Multicast Service (MBMS) and Transparent end-to-end Packet-switched
Streaming Service (PSS).[3][4][5][6] 3G2 is defined in the 3GPP2 technical specification.[2] The factual accuracy of parts of this article (those related to 3GP codec lists while 3G2 has stagnated. Please help update this article (those related to 3GP codec lists while 3G2 has stagnated.)
article to reflect recent events or newly available information. (February 2021) Relations between ISO Base Media File Format, MP4 File Format, MP4 File Format, and 3GPP2 file format and 3GPP2 file format and 3GPP2 file format and 3GPP2 file format.
format defined in ISO/IEC 14496-12 - MPEG-4 Part 12, [8][9][10] but older versions of the 3GP file format did not use some of its features. [7] 3GP and 3G2 are container formats similar to MPEG-4 Part 12. The 3GP and 3G2 file format were designed to decrease storage and bandwidth requirements to
accommodate mobile phones. They are good for lower end smartphones for faster streaming & download. 3GP and 3G2 are similar standards, but with some differences: 3GPP file format was designed for CDMA-based phones and may have the filename
extension .3g2 Some cell phones use the .mp4 extension for 3GP video. The 3GP file format stores video streams as MPEG-4 Part 2, H.263, or MPEG-4 Part 10 (AVC/H.264), and audio streams as AMR-WB+, AAC-LC, HE-AAC v1 or Enhanced aacPlus (HE-AAC v2).
file format (MPEG-4 Part 12), because 3GPP specified the usage of the Sample Entry and template fields in the ISO base media file format ("MP4 Family" files).[11][12] For the storage of
MPEG-4 media specific information in 3GP files, the 3GP specification refers to MP4 and the AVC file format, which are also based on the ISO base media file format. [8] A 3GP file is always big-endian, storing and transferring the
most significant bytes first. [citation needed] The 3G2 file format can store the same video streams as EVRC, EVRC-B, EVRC-WB, 13K (QCELP), SMV or VMR-WB, which was specified by 3GPP2 for use in ISO base media file format.[12] The 3G2
specification also defined some enhancements to 3GPP Timed Text. 3G2 file format does not store Enhanced aacPlus (HE-AAC v2) and AMR-WB+ audio streams.[7] For the storage of MPEG-4 Part 2 video, MPEG-4 Part 2 video, MPEG-4 Part 10 - H.264/AVC) in 3G2 files, the 3G2 specification refers to the MP4 file format and the AVC file format
specification, which described usage of this content in the ISO base media file format. For the storage of H.263 and AMR content and recording of video in 3GP format (memory, maximum filesize for playback and recording, and
 resolution limits exist and vary).[citation needed] Some newer/higher-end phones without 3G capabilities may also playback and record in this format (again, with said limitations).[citation needed] Audio imported from CD onto a PlayStation 3 when it is set to encode to the MPEG-4 AAC format copies onto USB devices in the 3GP format. [citation needed] and record in this format copies onto USB devices in the 3GP format.
needed] The Nintendo 3DS used 3GP technology to play YouTube videos. Apple iDevices used to support files for playback only as passthrough files, hence no editing ability, but since iOS 9 this has been deprecated meaning files of this format have to be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies cannot be manually converted to H.264.[citation needed] When transferred to a computer of the support of the su
be viewed on Microsoft Windows, Apple macOS, and the various Linux-based operating systems; on the former two with WLC media player. [15] Programs such as Media Player Classic, K-Multimedia Player, Totem, RealPlayer, MPlayer
and GOM Player can also be used. 3GP and 3G2 files can be encoded and decoded with open source software FFmpeg.[16] Media tags can be read and written on Linux, macOS and Windows using the open source AtomicParsley command-line utility.[17] computer programming portal Comparison of (audio/video) container formats SIF (Source Input
 Format) CIF (Common Intermediate Format on 2009-06-02. a b c ETSI 3GPP 3GPP TS 26.244; Transparent end-to-end packet switched streaming service (PSS); 3GPP file Format for Multimedia Services for cdma2000". 3GPP2. 2003. Retrieved 2009-06-02.
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 codecs Page 10. Retrieved on 2009-06-02. ^ a b c d "3GPP2 C.S0050-B Version 1.0, 3GPP2 File Formats for Multimedia Services" (PDF) on / October 2009. Retrieved 2009-06-12. ^ a b "3GPP 1S 26.244; Transparent end-to-end packet switched streami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          na service (PSS): 3GPP file
format (3GP)" (PDF). ETSI 3GPP. 2008-12-11. p. 9. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". Chiariglione. October 2009. Retrieved 2009-12-26. "ISO/IEC 14496-12:2008, archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". Chiariglione. October 2009. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". Chiariglione. October 2009. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal". April 2006. Archived from the original on 2008-07-14. Retrieved 2009-12-26. "ISO Base Media File Format white paper - Proposal".
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 "AtomicParseley". Wez Furlong. Retrieved 2024-06-24. 3GPP codecs specifications; 3G and beyond / GSM, 26 series 3GPP file format (3GP); 3GPP TS 26.244; Transparent end-to-end packet switched streaming service (PSS) - specification 3GPP2 specifications 3GPP2 File Formats for Multimedia Services; 3GPP2 C.S0050-B Version 1.0 - specification
RFC 3839, MIME Type Registrations for 3rd Generation Partnership Project (3GPP) Multimedia files RFC 4393, MIME Type Registrations for 3GPP2 Multimedia files RFC 4393, MIME Type Registrations for 3GPP2 Multimedia files RFC 4393, MIME Type Registrations for 3GPP2 Multimedia files RFC 4393, MIME Type Registrations for 3rd Generation Partnership Project (3GPP) Multimedia files RFC 4393, MIME Type Registrations for 3GPP2 Multimedia files RFC 4393, MIME Type RF
media type video/3gpp, audio/3gppUniform Type Identifier (UTI)public.3gppDeveloped by3GPPInitial release4 April 2003; 22 years ago (2003-04-04)[1]Latest release17.0.0[1]7 April 2002; 3 years ago (2002-04-07) Type of formatContainer format
3G2Filename extension .3g2, .3gp2, .3gp2Internet media type video/3gpp2Uniform Type Identifier (UTI)public.3gpp2Developed by3GPP2Initial releaseJanuary 2004; 21 years ago (2004-09) Type of formatContainer formatContainer foraudio, video,
textExtended fromMPEG-4 Part 12Open format? YesFree format? Ye
codecs. 3G2 (3GPP2 file format) is a multimedia container format defined by the 3GPP2 for 3G CDMA2000 multimedia services. It is very similar to the 3GP file format but consumes less space and bandwidth, and has some extensions and limitations in comparison to 3GP. 3GP is defined in the ETSI 3GPP technical specification.[1] 3GP is a required
file format for video and associated speech/audio media types and timed text in ETSI 3GPP technical specifications for IP Multimedia Broadcast/Multicast Service (MBMS), Multimedia Broadcast/Multicast/Multicast/Mul
technical specification.[2] The factual accuracy of parts of this article (those related to 3GP codec list (see release 12 of 2016 p.65)) may be compromised due to out-of-date information. The reason given is: 3GP has expanded codec lists while 3G2 has stagnated. Please help update this article to reflect recent events or newly available information.
(February 2021) Relations between ISO Base Media File Format, MP4 File Format, 3GPP file format and 3GPP2 file format are both structurally based on the ISO base media file format defined in ISO/IEC 14496-12 - MPEG-4 Part 12,[8][9][10] but
older versions of the 3GP file format did not use some of its features.[7] 3GP and 3G2 are container formats similar to MPEG-4 Part 12. The 3GP and 3G2 file format were designed to decrease storage and bandwidth requirements to accommodate mobile phones. They are good for lower end smartphones
for faster streaming & download. 3GP and 3G2 are similar standards, but with some differences: 3GPP file format was designed for CDMA-based phones and may have the filename extension .3g2 Some cell phones use the .mp4 extension for 3GP video.
The 3GP file format stores video streams as MPEG-4 Part 2, H.263, or MPEG-4 Part 10 (AVC/H.264), and audio streams as AMR-WB, 
Sample Entry and template fields in the ISO base media file format as well as defining new boxes to which codecs refer. These extensions were registered by the registration authority for code-points in ISO base media file format ("MP4 Family" files).[11][12] For the storage of MPEG-4 media specific information in 3GP files, the 3GP specification
refers to MP4 and the AVC file format, which are also based on the ISO base media file format. The MP4 and the AVC file format specifications described usage of MPEG-4 content in the ISO base media file format. The MP4 and the AVC file format specifications described usage of MPEG-4 content in the ISO base media file format.
the same video streams and most of the audio streams used in the 2007 3GP file format. [12] The 3G2 specification also defined some enhancements to 3GPP Timed Text. 3G2 file
format does not store Enhanced aacPlus (HE-AAC v2) and AMR-WB+ audio streams.[7] For the storage of MPEG-4 media (AAC audio, MPEG-4 part 10 - H.264/AVC) in 3G2 specification refers to the MP4 file format and the AVC file format specification, which described usage of this content in the ISO base media
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iDevices used to support files for playback only as passthrough files, hence no editing ability, but since iOS 9 this has been deprecated meaning files of this format have to be manually converted to H.264.[citation needed] When transferred to a computer, 3GP movies can be viewed on Microsoft Windows, Apple macOS, and the various Linux-based
operating systems; on the former two with Windows Media Player [13] and Apple QuickTime [14] respectively (their built-in media player, Totem, RealPlayer, and GOM Player can also be used. 3GP and 3G2 files can be encoded and
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26.234; Transparent end-to-end Packet-switched Streaming Service (PSS); Protocols and codecs Page 58. Retrieved on 2009-06-02. ^ ETSI (2009-01); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Media formats and codes Page 11. Retrieved on 2009-06-02. ^ "ETSI TS 126 346 V8.3.0 (2009-06); 3GPP TS 26.140; Multimedia Messaging Service (MMS); Multimedia Messa
26.346; Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs". ETSI. June 2009. p. 85. Retrieved 2009-10-13. ^ ETSI (2009-01) ETSI TS 126 141 V8.0.0 (2009-01); 3GPP TS 26.141; IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs Page 10. Retrieved on 2009-06-02. ^ a b c d "3GPP2 C.S0050-B
Version 1.0, 3GPP2 File Formats for Multimedia Services" (PDF). 3GPP2. 18 May 2007. pp. 67, 68. Archived from the original (PDF) on 7 October 2009-06-12. ^ a b "3GPP TS 26.244; Transparent end-to-end packet switched streaming service (PSS); 3GPP file format (3GP)" (PDF). ETSI 3GPP. 2008-12-11. p. 9. Retrieved 2009-05-30. ^
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specifications; 3G and beyond / GSM, 26 series 3GPP file format (3GP); 3GPP TS 26.244; Transparent end-to-end packet switched streaming service (PSS) - specification RFC 3839, MIME Type Registrations for 3rd Generation Partnership
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Advanced Audio Coding (links | edit) View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500) Retrieved from "WhatLinksHere/3GP and 3G2" Olavo de Carvalho O
Virgínia, Estados Unidos Nacionalidade brasileiro Progenitores Mãe: Nicéa Pimentel de CarvalhoPai: Luiz Gonzaga de CarvalhoPai: Luiz
Nacional do Mérito da Romênia[6] Medalha Tiradentes[4] Religião Católico romano[7] Parte da série sobreConservadorismo Varquismo Varquis
Federalismo Armamentismo Lei e ordem Militarismo Patriotismo Intelectuais Roberto Campos Otto Maria Carpeaux Olavo de Carvalho Gustavo Corção Plinio Corrêa de Oliveira Lima João Camilo de Oliveira Torres Padre Paulo Ricardo Sobral
Pinto Miguel Reale Ricardo Vélez Rodríguez Mário Ferreira dos Santos Vicente Ferreira dos Santos Vicente Ferreira dos Santos Vicente Ferreira dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Plínio Salgado Sara Winter Partidos políticos União Carlos Lacerda Joaquim Nabuco Arlindo Veiga dos Santos Vicente Ferreira dos Vicente Ferreira dos Vicente Ferreira dos Vicente Ferreira do Vicente Ferreira Vicente 
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comunista no Brasil Bolsominion Brasil Bolsominion Brasil acima de tudo, Deus acima de
escritor, astrólogo,[nota 1] ensaísta, polemista,[24] influenciador digital e ideólogo brasileiro, reconhecido como um responsável pelo surgimento da Nova Direita
brasileira.[31][32] Foi considerado um "guru" do ex-presidente da República Jair Bolsonaro e do bolsonarismo,[33][34][35][36] qualificação que rejeitava.[37][38] Seu discurso era caracterizado pela recusa do que chamava de "politicamente correto" e pela presença de ataques ad hominem e de termos chulos.[39][40] Diversas publicações indicaram
que os livros e artigos de Carvalho divulgavam teorias conspiratórias e informações incorretas,[41][42][43][44] e apontaram que o polemista fomentava discursos de ódio[45][46] e anti-intelectualistas.[47] Crítico da modernidade,[48] demonstrava interesse por filosofia histórica, histórica, histórica dos movimentos revolucionários, tradicionalismo e religião
comparada.[49][50] Apesar de relativo sucesso de vendas, seu trabalho não teve impacto no meio acadêmico e seus escritos no campo da filosofia são rejeitados por vários especialistas.[51][52][53] De 2005 até ao fim da vida, viveu em Richmond, Virgínia, Estados Unidos. Olavo de Carvalho foi simpatizante das ideias e filiado ao Partido Comunista
Brasileiro,[54][55] tendo militado em sua juventude ventilando ideias opositoras à ditadura militar brasileira entre 1966 e 1968,[31][56][57] mas tornou-se anticomunista a partir da década seguinte, posição que manteve até o fim da vida.[58] O PCB nunca confirmou ou negou sua filiação ao partido, tendo o mesmo se dissolvido em 1992.[59] Como
astrólogo, colaborou no primeiro curso de extensão universitária em astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formandos em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formandos em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formandos em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formandos em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formandos em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido a formando em psicologia.[13] Como escritor, lançou sua primeira publicação em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1979, oferecido em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), em 1980, A Imagem do Homem na Astrologia da Pontifícia Universidade Católica da Pontifícia Universidade Católica d
um Idiota, coleção de textos curtos publicados na imprensa.[31] Outros de seus livros mais conhecidos são O Jardim das Aflições (1995) e O Imbecil Coletivo (1996). Em fevereiro de 1977, começou a colaborar para o caderno literário "Folhetim", publicado na Folha de S.Paulo.[60][61][62] Nos anos seguintes, atuou como colunista nos jornais O Globo,
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Jornal do Brasil, Folha de S.Paulo, Zero Hora, dentre outros.[63] Em 1979, fundou a Escola Júpiter de Astrologia (na época situada na região dos Jardins, zona oeste de São Paulo), juntamente com Antônio Carlos Harres e Mary Lou Simonsen (filha do empresário Mário Wallace Simonsen). A escola organizou eventos, palestras e dois seminários; o
primeiro, "Pequeno Seminário de Astrologia", em fevereiro de 1979, e o segundo em setembro de 1979.[64][65][66] Uma das ex-alunas da escola foi a astróloga e cientista social Barbara Abramo, cuja família fundou o Partido dos Trabalhadores.[67][68] Olavo de Carvalho ministrava cursos de astrologia e outros temas; em um desses cursos, com
duração de oito meses aulas semanais, Olavo ofereceu "Orientação Profissional Segundo a Astrologia".[64] Em 1979, colaborou no primeiro curso de extensão universitária em astrologia da Pontifícia Universidade Católica de São Paulo (PUC-SP), oferecido a formandos em psicologia.[69] Na década de 1980 tornou-se membro da Tariqa, ordem mística
muçulmana liderada por Frithjof Schuon.[70] Embora admita a importância do Islã em sua formação, mais tarde lamentou a sua expansão no Ocidente.[31] Em 1986, foi premiado pela Universidade de Alazar e pelo Reino da Arábia Saudita pela escrita de uma obra sobre o profeta Maomé.[71] Estudou no Conpefil (Conjunto de Pesquisa Filosófica)[72]
da Pontifícia Universidade Católica do Rio de Janeiro por três anos, sob a direção do professor e padre Stanislavs Ladusãns.[73] Apresentou os trabalhos Estrutura e Sentido da Enciclopédia das Ciências Filosóficas de Mário Ferreira dos Santos e Leitura Analítica da "Crise da Filosofia Ocidental" de Vladimir Soloviov, mas não concluiu o curso, saindo
dele após a morte de Ladusãns em 1993 - não possuindo, portanto, nenhuma titulação acadêmica convencional.[31] Em 1996, publicou O imbecil coletivo: atualidades inculturais brasileiro. A obra recebeu elogios do jornalista Paulo Francis[32] e do economista Roberto Campos, que
classificou Olavo como "um filósofo de grande erudição".[74] Debateu com o russo Aleksandr Dugin (cientista político, conselheiro do presidente da Rússia Vladimir Putin e principal ideólogo do eurasianismo)[75] sobre a Nova Ordem Mundial, gerando em 2012 o livro "Os EUA e a Nova Ordem Mundial".[76] Dugin concluiu que a posição de Olavo foi
"muito pessoal, idiossincrática e irrelevante".[77] O ensaísta libertário romeno Horia-Roman Patapievici elogiou muito a postura e os argumentos de Olavo no debate, considerando sua réplica brilhante.[78] Em 2013, publicou O Mínimo que Você Precisa Saber para não Ser um Idiota. O livro é um apanhado de 193 artigos escritos por ele de 1997 até a
data de publicação, tendo vendido aproximadamente 320 mil exemplares.[31][79] A obra recebeu elogios dos jornalistas Carlos Ramalhete,[80] Euler de França Belém, Paulo Briguet,[81] Reinaldo Azevedo[82] e do padre Paulo Ricardo;[83] bem como da livraria da Folha de S.Paulo.[84] Em 2015 iniciou seu canal homônimo no YouTube, atualmente
com mais de 1 milhão de inscritos e pelo menos 81 milhão de inscritos e pelo menos 81 milhões de visualizações.[85] Segundo coluna escrita pelo jornalista Ancelmo Gois, também ex-filiado ao Partido Comunista Brasileiro,[86] o canal de Olavo era categorizado como "Comédia";[87] atualmente o YouTube não mais exibe categorias nos canais. Sua página no Facebook é seguida por pelo
menos 551 mil usuários. Nas redes sociais, fazia críticas à imprensa, ao cenário cultural e à universidade; atribuindo aos movimentos progressistas culpabilidade da deterioração desses espaços que, segundo ele, teriam se tornado apenas campos de burocracia e rituais de doutrinação.[88] Em 15 de agosto de 2018, suas páginas do Facebook foram
bloqueadas por trinta dias; Olavo atribuiu o bloqueio a "piadinhas" que fez a dois ex-alunos de seu curso online de filosofia, Carlos e Jorge Velasco.[89] Até 2016 escreveu para o Diário do Comércio (veículo de propriedade da Associação Comercial de São Paulo), na coluna "Mundo Real".[90][91] Tornou-se um dos principais difusores das ideias de
extrema-direita no Brasil. Ainda em 2016, Donald Trump classificou Carvalho como "um dos maiores intelectuais conservadores do mundo".[92] Ele ganhou grande repercussão de joir Bolsonaro em 2018, sendo um importante teórico de seu governo.[93] Embora a obra de Carvalho tenha tido sucesso de audiência entre o público
geral, não obteve grande repercussão na academia brasileira.[94][carece de fonte melhor] Carvalho e Jair Bolsonaro em 2019 Olavo afirmava que suas ideias não se enquadravam em uma categoria ideológica, condenando quem adota posições por automatismo sustentado por ideologias. Ele aponta que o coeficiente de esquerda ou de direita está nos
olhos do observador e varia conforme as épocas e os lugares. Olavo dizia que preferia se manter afastado dos enquadramentos ideológicos no Brasil, muito embora se visse alinhado à direita americana. [95] Para Carvalho, a esquerda política brasileira conseguiu dominar a universidade, a mídia, a cultura e a política do país, empregando os métodos da
revolução passiva (a "revolução sem revolução") de Antonio Gramsci.[31] Entre indivíduos já criticados por Olavo estão Lula, Fidel Castro, Barack Obama, entre outros. Poder-se-ia citar ainda entidades como o Foro de São Paulo,[84] o Movimento dos Trabalhadores Rurais Sem Terra (MST), o eurasianismo,[75] o Partido dos Trabalhadores, as FARC e
a Confederação Nacional dos Bispos do Brasil. Criticava bastante o desarmamento civil, e alegava que as organizações desarmamentistas estavam ligadas aos interesses de grupos milionários nacionais e estrangeiros.[96] Em um artigo jornalístico produzido em dezembro de 2010 para a revista Época, o autor sugeriu que Ladislav Bittman teria, na
posição agente da StB, conduzido operações de bandeira falsa e desinformação, fazendo com que as agências de inteligência norte-americanas levassem a culpa pelo golpe de 1964 no âmbito das escolas e da mídia brasileira.[97] Em 1996, Carvalho "profetizava", em entrevista ao jornalista Pedro Bial, no telejornal da Globo Bom Dia Brasil, que apesar
do então recente colapso socialista na URSS, a esquerda brasileira iria ascender ao poder com grande força, já que, de acordo com ele, "a partir da década de 1960, foram adotando a estratégia gramsciana, que é a de fazer a revolução cultural primeiro para fazer a revolução política depois".[98] Ainda acrescentou que "muitas vezes [os esquerdistas]
têm poder, mas não assumem que têm, então continuam se sentindo perseguidos e infelizes". Em entrevista à BBC em dezembro de 2016, Olavo, quando perguntado sobre a direita brasileira, afirmou: "quis que uma direita existisse [no Brasil], o que não quer dizer que eu pertença a ela. Fui o parteiro dela, mas o parteiro não nasce com o bebê". Para
ele "atualmente é obrigatório estar na direita", mas deixou claro que não tem "compromisso com nenhuma política em particular".[31] Em abril de 2016, a Associação Brasileira Interdisciplinar de AIDS (Abia) condenou as declarações de Olavo de Carvalho sobre o episódio em que o deputado Jean Wyllys cuspiu no também deputado Jair Bolsonaro,
durante votação do impeachment de Dilma.[99] Nas redes sociais, Olavo afirmou que Jean, como "membro de um grupo de risco", deveria se submeter a um exame para verificar se sua saliva não transmite o vírus da Aida". Em nota, a Abia recomendou que ele "seja imediatamente submetido a exames para verificar se sua saliva não transmite o vírus da Aida".
da ignorância e do preconceito" e lamentou as "doses vergonhosas de desinformação e desrespeito" de Olavo de Carvalho em relação às pessoas que vivem com HIV/AIDS no Brasil.[100][101] Este artigo pode conter pesquisa inédita. Discussão relevante pode ser encontrada na página de discussão. Ajude verificando seu conteúdo e adicionando fontes
confiáveis. Material original ou baseado somente em fonte primária poderá ser removido.—Encontre fontes: Google (notícias • livros • acadêmico • imagens livres • WP refs) • ABW • CAPES A posição de Olavo de Carvalho relativamente à reivindicação, pelo movimento negro brasileiro e americano, de reparação prático-político-institucional pelo
colonialismo-escravismo-racismo contra os povos negros, vertida, em particular, na sua obra O Imbecil Coletivo, pode definir-se por quatro ideias estruturantes:[pesquisa inédita] Negros não têm direito a reparação alguma e ela representa uma incongruência e uma seletividade, já que, antes de serem escravizados, os próprios negros - quando foram
faraós no Egito - escravizaram judeus e árabes; A culpa pela escravização dos negros é dos próprios negros, por causa de sua cultura decadente, desestruturada e degenerada, cujo maior exemplo são suas tradições religiosas mágico-animistas africanas; Negros não deram nenhuma contribuição cultural à civilização ocidental, mas apenas uma
contribuição material, sob a forma do trabalho escravo, não tendo por que reivindicar qualquer tratamento especial por parte do Ocidente branco; A cultura negra é inferior à cultura n
que os negros mais ganharam que perderam com a colonização.[102] Olavo de Carvalho recusava a práxis reparatória defendida pelo movimento negro em relação ao colonialismo-escravidão-racismo, em primeiro lugar porque todos os povos são criminosos em alguma medida e, portanto, não têm nada a cobrar uns dos outros. Assim, os negros
africanos porque teriam uma vez governado o Egito, e escravizado por mais de mil anos aos povos semitas, entre eles árabes e judeus, não poderiam, consequentemente, exigir reparação pela escravidão que sofreram depois de toda a colonização, escravização e instrumentalização que cometeram àqueles que, posteriormente, fariam o mesmo que
eles, só que agora com eles. Essa tendência de opressão e violência mútuas faria, adicionalmente, parte da constituição de todos os povos ao longo do tempo e, na verdade, além de revelar uma tendência humana básica do conflito entre Behemoth e Leviatã, aponta para o fato de que uma civilização somente pode ser conquistada quando é fraca
culturalmente e quando está em desestruturação e degeneração em termos político-morais. Assim, aliado ao fato de que eles foram colonizados, dominados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados, dominados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados, dominados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados, dominados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados, dominados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados e uma má-fé moral seletivas contra os brancos, tem-se a própria questão de que eles foram colonizados e uma má-fé moral seletivas contra os brancos e uma má-fé moral seletivas e u
escravizados porque estavam em decadência cultural, enfraquecidos como civilização, desestruturados social e politicamente. E por que estavam nessa condição de crise civilização e à ossificação. A colonização europeia-branca teria
sido, assim, somente um adendo, um ponto superficial em uma realidade de desestruturação, degeneração e apagamento cultural-civilizacional vivido pelo povo negro por causa de seus próprios déficits antropológicos, em particular de suas tradições religiosas. Se por um lado negros também foram senhores de escravos - entre si, dos árabes e dos
judeus -, por outro é importante considerar-se que a culpa pela escravidão é dos próprios negros e de sua cultura decadente, e não dos brancos europeus, os quais conseguiram sua supremacia por causa de sua cultura superior. Desse modo, segundo Olavo de Carvalho, não há qualquer reparação a ser paga e a crítica aos brancos é pura e
simplesmente seletiva, incongruente e acrítica.[102] Em segundo lugar, Olavo de Carvalho, ao negar a responsabilização social, institucional na exata medida em que recusa a determinação social, institucional na exata medida em que recusa a determinação social, institucional, macroestrutrual da subjetividade, do lugar sociopolítico do indivíduo, reduz toda a dinâmica humana à ação e ao protagonismo individuais.
Não existe a sociedade enquanto macroestrutura ou macroestrutura en acroestrutura en acroes
que determinam socialização e subjetivação de modo último e, finalmente, não existe a classe social, o partido político, a massa amorfa que subsumam e anulem os indivíduos. Estes indivíduos. Estes indivíduos, não podem explicar seu fracasso ou seus méritos por causa de supostas condições objetivas, mas por seu protagonismo ou pela falta
dele. Assim, Olavo de Carvalho nega a política, a história e a ação humana intersubjetiva e afirma a centralidade do indivíduo, de Deus e da graça divina, reduzindo a busca pela verdade a uma cruzada pessoal em termos de interiorização como intuição direta, imediata e mediada do indivíduo para com Deus. Portanto, nesse caso, o movimento negro
não pode exigir reparação pela sua condição de miséria, de exclusão e de desigualdade contemporânea porque cada indivíduo negro faz parte de uma sociedade que aboliu a escravidão e que equalizou a todos há mais de cem anos, tendo tempo e condições suficientes para se desenvolver e modificar sua situação pessoal. Se não conseguiram, isso
mais uma vez não se deve à herança colonial, escravocrata e racista, mas à sua incapacidade pessoal.[102] Em terceiro lugar, a posição de Olavo de Carvalho em relação ao (não)lugar das tradições negro-africanas na cultura/civilização ocidental, escravocrata e racista, mas à sua incapacidade pessoal.[102] Em terceiro lugar, a posição de Olavo de Carvalho em relação ao (não)lugar das tradições negro-africanas na cultura/civilização ocidental, escravocrata e racista, mas à sua incapacidade pessoal.[102] Em terceiro lugar, a posição de Olavo de Carvalho em relação ao (não)lugar das tradições negro-africanas na cultura/civilização ocidental assenta na ideia de que não houve contribuição cultural negro-africanas na cultura/civilização ocidental, escravocrata e racista, mas à sua incapacidade pessoal.[102] Em terceiro lugar, a posição de Olavo de Carvalho em relação ao (não)lugar das tradições negro-africanas na cultura/civilização ocidental assenta na ideia de que não houve contribuição cultural negro-africanas na cultura/civilização ocidental assenta na ideia de que não houve contribuição cultural negro-africanas na cultura/civilização ocidental assenta na ideia de que não houve contribuição cultural negro-africanas na cultura/civilização ocidental assenta na ideia de que não houve contribuição cultural negro-africanas na cultura/civilização ocidental negro-africanas na cultural negro
que essa mesma civilização ocidental é universal, o que nos leva a concluir que as tradições negroafricanas são particulares, meramente contextuais. Convém referir que aquilo que Olavo de Carvalho entende por cultura/civilização ocidental diz respeito à conjunção da tradição ontoteológica judaico-cristã (incluindo-se, aqui, a filosofia-teologia
medieval), da metafísica greco-latina e, como síntese desses momentos, do Renascimento. Assim, o que interessa a Olavo de Carvalho, na sua definição da cultura/civilização ocidental é a universalidade da ontoteologia e, nesse caso, universalidade significa seja a perspectiva da escatologia cristã, representada de modo último pela revelação na
correlação do Antigo e do Novo Testamento, seja a ideia filosófica de determinação da antropologia/cultura/normatividade pela religião/biologia, pela centralidade de fundamentos essencialistas e naturalizados com caráter pré-político, pré-cultural e anti-histórico sobre a história, a cultura, a política, a sociedade. Nessa concepção, não só não entram
as tradições negroafricanas, inferiores à ontoteologia, como também não tem lugar a modernidade iluminista materialista, relativista, ateia, ideológica e totalitária. A ontoteologia é, assim, associada por Olavo de Carvalho diretamente ao espiritualismo, correlacionada tanto com essa perspectiva de um intuicionismo epistêmico altamente individualista
que, pela sua impotência, necessita permanentemente da graça divina representada e doada por Jesus Cristo quanto com essa ideia de determinação religioso-biológica da antropologia-cultura-normatividade. Daqui devém a perspectiva dualista-maniqueísta de Olavo de Carvalho, de que só não é ideologia a ontoteologia e, nesse caso, a escatologia e a
teodiceia judaico-cristãs, de que só não é ideologia o indivíduo e sua intuição direta, imediada, interiorizada e altamente pessoal da verdade, isto é, de Deus; e de que, então, todo o materialismo, toda a história, toda a política e toda ação intersubjetiva são apenas ideologias que negam a centralidade do indivíduo, que recusam o
protagonismo do espírito e da graça, que deslegitimam a Deus e que buscam a manipulação e a massificação acima de tudo e contra a Verdade absoluta. Só a religião cristã e o indivíduo são bons; toda e qualquer forma política e histórica, sempre materialistas, são más, levam ao totalitarismo. Por isso mesmo, os verdadeiros valores universais são os
valores do espírito, isto é, a condição religioso-biológica do homem e, então, a intuição individual, pessoal e direta do homem para com Deus. Todas as tradições culturais, filosóficas e políticas que destoam do arcabouço ontoteológico e que negam a centralidade seja do indivíduo de carne e osso, seja do espiritualismo, estão fora da universalidade,
fora da cultura/civilização ocidental, sendo esse o caso dos povos negros e da própria modernidade iluminista.[102] Esta posição filosófica apresenta-se, então, extremamente mal construída, pela sua contradição epistêmica, ausência de critérios paradigmáticos, subjetivismo estrito, intuicionismo privatista, dualismo-maniqueísmo antropológico,
fundamentalismo-dogmatismo religioso, postura antiobjetiva e antiestrutural em termos de justificação, imprecisão histórico-culturais, do Estado democrático de direito, dos direitos humanos e da discussão racional
objetiva, cientificamente regulada, passa pela defesa do fundamentalismo e do dogmatismo religiosos como critério público institucional e chega exatamente ao autoritarismo e ao fascismo institucional e culturalmente. A consequência desta postura é a cegueira para a
diversidade, a recusa da pluralização epistêmica, a negação da discussão racional-científica e, assim, a imoderação, a insensibilidade e o fechamento institucionais para a necessária reflexividade, criticidade e transformação das estruturas sociais, especialmente no que se refere às consequências de uma modernização conservadora altamente racista
e autoritária.[102] Em novembro de 2018, após a eleição presidencial brasileira, declarou que (se convidado) aceitaria ser o embaixador do Brasil nos Estados Unidos.[103] Afirmou que, em caso de indicação pelo presidente eleito Jair Bolsonaro, este seria o único cargo que aceitaria.[104] Segundo ele: " (...) O que o Brasil mais precisa é de dinheiro.
E, como embaixador nos EUA, eu saberia fazer dinheiro. Eu peguei alguma prática desse negócio de comércio internacional.[103](...) O embaixador no outro país tem autoridade total sobre seus conterrâneos ali. Pode mandar embora qualquer um, pode
mandar prender qualquer um. Ele é um reizinho. Ele não tem que dar satisfação para a "petezada".[104] " Era frequentemente citado pela imprensa como um "guru intelectual" de Jair Bolsonaro e dos filhos do presidente,[15][22][23][33][34][35][36] mas rejeitava essa classificação[37] e alegava que Bolsonaro era "aconselhado por generais covardes
ou vendidos".[105] Apesar de negar que tivesse influência no governo, Olavo sugeriu nomes para ocupar cargos no primeiro escalão e estes foram acatados por Bolsonaro: o ministro das Relações Exteriores Ernesto Araújo[106] e o ministro das Relações Exteriores Ernesto Araújo[107][108] tendo esse último sido posteriormente substituído por
Abraham Weintraub, também aluno de Olavo.[109] Em 2020, mais afastado do governo, gravou um vídeo chamando Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][10] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de "covarde" e declarando que teria condições de tirá-lo da presidência.[38][110] Em dezembro de 2021, afirmou que Bolsonaro de 2021, afirmou que Bolso
Carvalho comandava "um gabinete de ódio do exterior" em relação às críticas feitas ao então ministro da saúde, Luiz Henrique Mandetta.[112] Embora não tivesse formação acadêmica[113] e seus escritos científicos sejam vistos por pesquisadores como pseudociência,[114] Olavo criticou fortemente diversas figuras que ocupam lugar destacado na
história das ciências,[114] como por exemplo Isaac Newton, a quem acusa de ter disseminado "o vírus da burrice na Terra." A crítica estende-se ainda a Giordano Bruno, que segundo ele "não foi condenado por defender teorias
científicas, mas por prática de feitiçaria, que na época era crime",[115] e a Galileu. " Um fundo de charlatanismo parece já ter sido introduzido na física por Galileu, quando proclamou ter superado a noção da ciência antiga, segundo ele. Na
realidade, pontificava, um objeto em tais condições permanece parado ou em movimento retilíneo e uniforme. E, após ter assim derrubado a física antiga, esclarecia discretamente que o movimento retilíneo e uniforme não existe realmente, mas é uma ficção concebida pela mente para facilitar as medições. Ora, se o objeto não movido de fora
permanece parado ou tem um movimento fictício, isto significa, rigorosamente, que ele permanece parado em todos os casos, exatamente como o dizia a física antiga, e que Galileu não contestou a física antiga, apenas inventou um
modo melhor de provar que ela tinha razão, e que o testemunho dos sentidos, sendo verídico o bastante, não tem em si a prova da sua veracidade — coisa que já era arroz-com-feijão desde o tempo de Aristóteles. Foi este episódio que inaugurou a mania dos cientistas modernos de tomarem simples mudanças de métodos como se fossem "provas" de
uma nova constituição da realidade.[115] " Também era crítico do trabalho de Georg Cantor a respeito de números transfinitos, acusando-o de confundir "números com seus meros signos", vendo seu trabalho como um "jogo de palavras" e uma "falsa lógica".[115] Não acreditava no aquecimento global[116] e fundamentava-se no episódio que ficou
conhecido como Climategate, em que hackers, nas vésperas da Conferência de Copenhague, disseminaram milhares de e-mails de climatologistas da Universidade de East Anglia, visando minar a credibilidade da conferência. Além disso, Olavo apontou que o Climategate seria obra da família Rockefeller, do Council of Foreign Relations e do Clube de
Bilderberg, indicando-os como atores principais da Nova Ordem Mundial, também responsáveis pelas "campanhas mundiais abortista e gayzista, da nova religião global biônica, da proposta do governo Obama para o controle universal da circulação de capitais".[117] Para Olavo, a AIDS não representava um risco para a população heterossexual,
baseando-se no livro The Myth of Heterosexual Aids do jornalista Michael Fumento, não concordando que essa ideia teria sido disseminada pela indústria farmacêutica e outros grupos para captar verbas governamentais.[117] Em janeiro de 2019, publicou um vídeo
em que discorda da teoria da relatividade e do heliocentrismo citando a Experiência de Michelson-Morley — experimento que visava comprovar a hipótese de éter luminífero — o experimento do observador e em nada ajudou à teoria da relatividade[118] e as
comprovações de que os planetas giram ao redor do Sol já datam de séculos e até hoje recebe comprovações através de inúmeras descobertas.[120] Olavo de Carvalho já afirmou que células de fetos eram utilizadas na fabricação da Pepsi.[121][122][123][124]
Apesar de criada fora do Brasil, Olavo foi o principal disseminador dessa fake news. O vídeo viralizou na época do Orkut.[121] Carvalho disse ainda que quem tomasse produtos da PepsiCo era "um abortista terceirizado".[122] A Agência Lupa e o Polígrafo analisaram o caso e concluíram que é uma fake news. A controvérsia surgiu devido a um
contrato entre a PepsiCo e a Senomyx; esta última utilizava uma cultura de células do tipo HEK-293, extraídas de um feto legalmente abortado nos Países Baixos em 1973, para criar novos sabores. No entanto, as células sofreram modificações e multiplicaram-se por mais de 45 anos em diferentes partes do mundo e, atualmente, nenhuma das células
originais integra qualquer uma das culturas de HEK-293. Assim, é falso dizer que células de feto são utilizadas na Pepsi. Em dezembro de 2019, a PepsiCo afirmou que "não tem mais qualquer relação comercial com a Senomyx e não realiza ou financia pesquisas feitas com tecido humano ou culturas de células de rivadas de embriões,"[122][123] Em
22 de março de 2020, durante a pandemia de COVID-19, doença causada pelo coronavírus SARS-CoV-2, afirmou que não havia nenhum caso confirmado de morte pelo referido vírus no mundo e que a pandemia seria "uma invenção" e "a mais vasta manipulação de opinião pública que já aconteceu na história humana".[125] Naquela data, a
Organização Mundial da Saúde contabilizava mais de 294 mil casos da doença e 12.784 mortes dela decorrentes.[126] A plataforma YouTube retirou o vídeo do ar, embora ele continuasse repercutindo no Twitter.[127] Ele próprio foi diagnosticado com a doença em 16 de janeiro de 2022, oito dias antes de sua morte, cuja causa não foi divulgada.[128]
Olavo não avaliava o mundo contemporâneo como uma realização do progresso, mas como um ocaso, expressão de uma crise da civilização que, segundo sua linha de pensamento, seria o adentrar na barbárie. Isso seria o resultado de um processo de fortalecimento da consciência coletiva, iniciado no Renascimento que atinge seu ápice na Revolução
Francesa com a prevalência da "opinião pública".[129] Segundo Benjamin R. Teitelbaum, que chegou a entrevistar Olavo, esse pensamento é típico de um tradicionalismo que acredita "que a humanidade está ao fim de um longo ciclo de declínio e que vai ser concluído com destruição e renascimento", em suas próprias palavras.[130] Olavo era crítico
do que chama de "sacerdócio das trevas", que engloba o kantianismo, o negelianismo, o necesión das trevas", que engloba o kantianismo, o necesión das trevas de libertação, o relativismo moral, cultural e ético, dentre outras correntes filosóficas e intelectuais. Segundo
Carvalho, essas correntes transferem a responsabilidade de conhecer a verdade do indivíduo para o coletivo. Defende a teoria da conspiração com o futuro. De acordo com seu pensamento, a cultura brasileira,
orientada sobretudo para a autodefinição da especificidade, inclina-se a supervalorizar o popular, o antropológico e o documental acima do que chama de valores supratemporais.[129] Em um debate em 1998, Carvalho afirmou que os mesmos que defendem o relativismo moral também possuem forte indignação moral, e que apesar de sua
desvalorização no campo intelectual, no campo emocional as pessoas estão fortemente apegadas à ideia de moral.[11] No seu livro Aristóteles em Nova Perspectiva, Olavo escreve que há embutida nas obras aristotélicas uma ideia central que passou despercebida por quase todos os seus leitores e estudiosos.[132] Carlos Heitor Cony elogiou as
publicações de Carvalho sobre Otto Maria Carpeaux[133][134] e Bruno Tolentino o classificou como "filósofo finíssimo, um erudito verdadeiro e um homem honestíssimo".[135] Embora o pensamento de Olavo tenha grande audiência entre o público geral, especialmente pelo uso que faz das mídias sociais,[136][137] não obteve repercussão na
filosófico".[94][136] Na visão de Alvaro Bianchi, diretor do Instituto de Filosofia e Ciências Humanas da Universidade Estadual de Campinas, há pouca verdade na sua narrativa filosófica, considera bizarra e equivocada sua interpretação da história da filosofia, e diz não entender como "essa montanha de erros parece consistente para seu público".
[136] Ao mesmo tempo, o acadêmico diz que sua fala "se mostra persuasiva e eficaz por abordar os medos e as inseguranças do homem comum perante as transformações do mundo contemporâneo", apresentando uma explicação simples mas equivocada para os problemas atuais: "Marxistas, feministas e gays teriam provocado a crise da civilização
cristã e empurrado a sociedade para o abismo. É obviamente uma teoria consejuem uma explicação razoável para seus medos".[139] Esther Solano, doutora em Ciências Sociais e professora da Universidade Federal de São Paulo, pensa que a notoriedade de Carvalho só se explica no
contexto das redes sociais, sabendo se comunicar "com base em frases polêmicas, conteúdos curtos, mensagens fáceis e ataques".[136] Fabricio Pontin, doutor em Filosofia Política e professor de Direito e Relações Internacionais na Universidade La Salle, diz não ter "a menor dúvida" de que ele "guarda um grande rancor dos anos que ele passou
sendo achincalhado pelo establishment universitário brasileiro". Comentando sobre a forma do seu discurso, disse que "o jogo do Olavo é plantar algum tipo de dúvida sobre uma questão consumados. Apesar da crítica, Pontin disse que ele soube
aproveitar muito bem o espaço deixado aberto pela academia em sua recusa de abandonar seu próprio ambiente e dialogar com o grande público: "Acho que toda essa polêmica ao redor do Olavo é uma excelente oportunidade para o pessoal nas universidades acordar e começar a pensar, sobretudo a Filosofia Política e Moral, para além das bolhas e
câmaras de eco da universidade".[138] Geovani Moretto, coordenador do curso de filosofia da Pontifícia Universidade Católica do Paraná, afirma que antigamente se admirava com a capacidade de Olavo virou aquilo que tanto criticava:
um dogmático.[31] Daniel Tourinho Peres, doutor em Filosofia e professor da Universidade Federal da Bahia, disse que "Olavo de Carvalho é um obscurantista, retrógrado, seu discurso é puramente ideológico e não tem sustentação argumentativa", e seu pensamento representa uma ameaça para o sistema universitário e para a ciência.[140] Bruno
Lima Rocha, doutor em Ciência Política, considera que sua notoriedade advém da quebra dos padrões do politicamente com "a correção na política e menos ainda no reconhecimento, diversidade, diferença sem desigualdade e um país pluriétnico".[137] Liriam Sponholz,
pós-doutora em Comunicação e livre-docente na Alpen-Adria-Universität em Klagenfurth, e Rogério Christofoletti, doutor em Comunicação e professor da Universidade Federal de Santa Catarina, reconheceram Olavo como um representante do discurso de ódio no Brasil.[141] Para Flávio Moura, doutor em Sociologia, em seus escritos abundam
formação, movida a ódio e ressentimento".[142] Segundo João Vitor Santos, em matéria para a Revista do Instituto Humanitas da Unisinos, ele "é tomado por muitos como um dos centrais pensadores da extrema direita brasileira",[138] e em pesquisa desenvolvida para estudar os impactos do seu discurso, analisando seus textos, vídeos e aulas, Rosa
 Rezende & Martins concluíram que ele é "certamente o maior influenciador das novíssimas direitas conservadoras no Brasil". Para os autores, "é possível verificar que a construção supostamente teórica apresentada por ele se fundamenta exclusivamente em pesquisas que visam localizar determinados escritos que corroboraram as suas análises
pessoas que considera "de bem", as que "trabalham, que seguem uma vida reta, cristã, dentro da lei e da ordem", e do outro, os que não se encaixam nessa construção, onde se incluem "os esquerdistas, comunistas, anarquistas, índios, prostitutas, gays, drogados, defensores de bandidos e dos direitos humanos". Para os pesquisadores, essa dicotomia
a despeito de sua inconsistência, artificialidade, não obstante exerce um importante impacto social e aparece para o público como verdade, "mesmo sendo fake news", além de servir como munição para grupos conservadores articulados por canais da internet e dedicados a uma suposta moralização da sociedade, mas divulgando
informações equivocadas, distorcidas ou sem fontes, além de promoverem o racismo de Estado alegadamente "em defesa da sociedade".[143] o engenheiro José Colucci Jr.,[145] e os jornalistas Mário Augusto Jakobskind[146] e Sebastião Nery. Este último afirmou notar a falta de formação acadêmica em
filosofia de Olavo, o que o impediria de lecionar a matéria em âmbito acadêmico, dizendo ainda que "isso tem nome: falsidade ideológica. E está no Código Penal".[147] Em março de 2001, o aposentado professor de filosofia e ex-guerrilheiro João Carlos Kfouri Quartim de Moraes,[148] associado ao grupo extremista de esquerda conhecido como
"Vanguarda Popular Revolucionária",[149][150] foi entrevistado pelo jornal da Unicamp.[151] Eventualmente, os estudantes perguntaram se o mesmo chegara a participado "de uma ou outra", e que era "solidário aos companheiros que pegaram em armas" para combater
a violência de golpistas, torturadores e "agentes do imperialismo"; o professor então mencionou o assassinato de Charles Rodney Chandler, oficial dos EUA, afirmando sem provas que o mesmo "nos bastidores, treinava torturadores".[152][nota 2] Sobre o assassinato, ele acrescentou: "Essa ação me valeu dois anos de condenação. Não participe
diretamente, mas eu era da direção do grupo. Poderia valer até 20 anos de cadeia, não interessa. O gringo veio aqui ensinar torturador... Ele estava achando que ia fazer o que queria, estava subestimando o fato de que havia uma resistência armada à ditadura. "— João Quartim de Moraes, Unicamp - Entrevista: O inventário inacabado [1] A
entrevista chegou ao conhecimento de Olavo em algum momento de 2007, que então comunicou leitores do Jornal do Brasil (provavelmente através de uma coluna)[nota 3] sobre as declarações do professor. Quartim, no entanto, se indignou com a informação, afirmando que era "uma mentira deslavada" que ele teria tido relação com o assassinato;
mudando radicalmente de postura sobre seu envolvimento ao responder as acusações em entrevista ao jornal eletrônico vermelho.org.br, ligado ao PT.[153] A entrevista, bastante longa, não faz menção ao material da Unicamp. Olavo, publicando um artigo para o Jornal do Brasil, ironizou a situação:[154] " [...] Fui acusado, pelo próprio Quartim, de
publicar "uma mentira deslavada". Em entrevista ao jornal eletrônico www.vermelho.org, reproduzida no site oficial do PT, o referido jura, agora, que não foi condenado por essa ação terrorista, mas por outro motivo. Não vou me perguntar se ele tem falta de memória ou falta de vergonha. Ambas essas deficiências aparecem sintetizadas na mentira
esquecida, atribuída retroativamente a quem teve a imprudência de acreditar nela. "— Olavo de Carvalho, Jornal do Brasil, 30 de agosto de Quartim, que afirmou à Unicamp que "grande parte" dos indiciados pela morte do militar estadunidense teriam
terminado nos "porões do DOI-CODI"; contra-argumentou, exibindo a lista total de indiciados pelo crime, publicada na Folha da Tarde de 28 de novembro de 1969, a qual demonstrava que nenhum dos envolvidos havia morrido no órgão, e que os sobreviventes atuavam como professores universitários ou políticos petistas.[155] Olavo finalizou,
dirigindo uma série de aforismos criticando tanto a brutalidade de torturadores militares quanto da esquerda revolucionária: "Matar prisioneiros inermes é um crime monstruoso em qualquer circunstância. Mas a liderança comunista tem-se esforçado para que aqueles que o cometeram sob as ordens do Estado brasileiro sejam objeto de castigo
enquanto os que fizeram o mesmo a mando de organizações terroristas são homegeados (sic) como heróis. A última dessas homenagens glorificou a figura macabra de Carlos Lamarca - tão macabra quanto a de qualquer torturador do DOI-CODI -, que não só matou um prisioneiro amarrado, mas o fez em pessoa, com sucessivas coronhadas,
esmagando-lhe metodicamente o crânio. Naturalmente, esperar que crimes iguais tenham tratamento igual é extremismo de direita. "— Olavo de Carvalho, Jornal do Brasil, 30 de agosto de 2007 Em razão das críticas realizadas em seus artigos e webcast, Olavo foi acionado judicialmente, ainda em 2007. Em sentença de 28 de novembro de 2012
somente as empresas responsáveis pelos jornais em que realizou publicações foram condenadas a indenizar Quartim por danos morais, constando que Olavo deixou de fazer parte do processo. Houve desistência posterior do autor do prosseguimento da ação (Quartim) por Olavo residir em "local incerto", fora do país.[156][157] Olavo acionou
 judicialmente em 2016 a Editora Abril devido a comentários feitos pelo jornalista Reinaldo Azevedo em blog mantido na página da Revista Veja, mas em primeira instância teve seu pedido de direito de resposta negado em duas ações.[158][159] Uma terceira ação tramita na Vara Criminal de Barueri, por injúria, contra o próprio jornalista.[160] Em
2017, Caetano Veloso entrou com uma ação contra Olavo de Carvalho por tê-lo acusado no Twitter de pedofilia por causa de seu relacionamento com Paula Lavigne.[161] Caetano e Paula começaram a se relacionamento com Paula Lavigne.[161] Caetano e Paula começaram a se relacionamento com Paula Lavigne.[162] Apesar
de controversa, a união não se enquadrava como crime na época.[163] Essa não é a primeira vez que os dois brigam. Olavo foi apenas uma entre várias pessoas processadas pelo casal na ocasião, como o pastor Marco Feliciano[165] e
membros do MBL.[166] Olavo foi condenado a pagar R$ 2,9 milhões e a apagar as postagens ofensivas do Twitter. Olavo pagou R$ 65 966,78 em 2020, mas se negou a apagar as postagens. Por isso, foi condenado a pagar uma multa diária de R$ 10 mil até que as ordens judiciais fossem cumpridas. A multa acumulou em R$ 2,9 milhões e Olavo entrou
com um recurso, que foi negado em 2021. Com a morte de Olavo em 2022, Caetano terá que esperar a partilha de seus bens se quiser continuar com o processo.[161]Em 2019 foi condenado na justiça a pagar uma dívida milionária a Caetano Veloso, após dizer em rede social que ele seria pedófilo.[167] Em 2021, a 5.º Câmara de Direito Privado do
Tribunal de Justiça do Estado de São Paulo determinou que a revista IstoÉ excluísse de seu site uma reportagem que mostra Olavo de Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de maio de 2019; nela, Carvalho como um bobo da corte. A reportagem foi capa da edição de 2019; nela, Carvalho como da corte. A reportagem foi capa da edição de 2019; nela, Carvalho como da corte. A reportagem foi capa da edição de 2019; nela, Carvalho como da corte. A reportagem foi 
dúvida, encerrar ofensas à dignidade e à moral do demandante", determinando ainda que a IstoÉ pagasse uma indenização de 40 mil reais a Carvalho Página inicial do website em fevereiro de 2018 Lema "Qui scribit, bis legit (do latim: Aquele que escreve, lê duas vezes)" Fundação agosto
de 2002 Sede Richmond, Virgínia, Estados Unidos Línguas oficiais língua portuguesa Editor-chefe Olavo de Carvalho Fundador(a) Olavo de Carvalho Fundador por Olavo em 2002 com o objetivo de combater o "viés esquerdista da grande mídia brasileira".[169] O site se
estrutura ao redor de um grupo de redatores e editores, majoritariamente brasileiros.[170] Em janeiro de 2018, o conselho editorial era formado por Olavo de Carvalho, Edson Camargo, Graça Salgueiro, Heitor de Paola, Percival Puggina, Nivaldo Cordeiro, Ipojuca Pontes e Carlos I. S. Azambuja, o editor executivo era Edson Camargo.[171] Ver artigo
principal: O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica, biografia e visão de mundo de Olavo de Carvalho, rodado na residência deste em Colonial Heights, EUA.[172] O longa-metragem O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica, biografia e visão de mundo de Olavo de Carvalho, rodado na residência deste em Colonial Heights, EUA.[172] O longa-metragem O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica, biografia e visão de mundo de Olavo de Carvalho, rodado na residência deste em Colonial Heights, EUA.[172] O longa-metragem O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica, biografia e visão de mundo de Olavo de Carvalho, rodado na residência deste em Colonial Heights, EUA.[172] O longa-metragem O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica, biografia e visão de mundo de Olavo de Carvalho, rodado na residência deste em Colonial Heights, EUA.[172] O longa-metragem O Jardim das Aflições (filme) O cineasta pernambucano Josias Teófilo dirigiu um filme que aborda a vida doméstica de la colonia de la coloni
Matheus Bazzo e direção de fotografia de Daniel Aragão. O filme foi inteiramente realizado com recursos captados através de financiamento coletivo e foi lançado em 2017.[174] Ao todo foram quase três mil doadores e arrecadação de 320 mil reais.[175][176][177] No festival Cine PE, realizado de 27 de junho a 3 de julho de 2017, O Jardim das
Aflições foi premiado em três categorias: melhor filme.[178][182][183][184] Segundo o próprio, ele abandonou a escola na "quarta série do ginásio", o equivalente ao 9º ano do ensino fundamental.[185] Em 2005, passou a residir na área
rural do Condado de Dinwiddie, ao sul de Richmond, capital do estado norte-americano de Virgínia.[186] Segundo ele, um dos motivos para sua mudança do Brasil e a hospitalidade oferecida pelos moradores locais.[31] De acordo com Gilberto
Dimenstein, fundador do site de notícias alinhado à esquerda "Catraca Livre", Carvalho teria declarado em seu programa True Outspeak que em dezembro de 2009 recebera do governo dos Estados Unidos um visto de residência após aproximadamente três anos, ao final do qual passou a residir naquele país. A publicação alega que Olavo afirmou ter
sido agraciado com um visto de "habilidades extraordinárias" (extraordinárias" (extraordinárias de tela do seu Facebook, o jornalista acrescentou que ele não preenchia os requisitos para esse tipo
de visto, e que a informação teria sido checada por "vários advogados, no entanto, não foram citados ou tiveram falas incluídas na notícia.[188] Após sua mudança para os Estados Unidos, além da manutenção periódica de seu website com novos artigos e ensaios, Carvalho ministrou cursos à distância e presenciais sobre
História da Filosofia, bem como promoveu palestras e conferências. Estes cursos eram, para ele, uma forma encontrada para enfrentar o que definia como "a morte da alta cultura brasileira".[31] Olavo foi também presidente de uma organização não governamental (ONG) chamada "Inter-American Institute".[189] A família de Carvalho divulgou uma
nota em redes sociais sobre sua morte, ocorrida em 24 de janeiro de 2022, oito dias após ser diagnosticado com COVID-19.[190][191] Olavo estava internado num hospital em Richmond, na Virgínia, Estados Unidos.[190] Embora a causa da morte não tenha sido divulgada junto da nota, sua filha Heloísa afirmou que ela se deveu à COVID-19.[192] Por
outro lado, Ahmed Youssif El Tassa, médico dele, disse que o motivo do falecimento teria sido uma "insuficiência da pandemia,[194] chegando a afirmar, em 2020, que o coronavírus era "a mais vasta manipulação de opinião pública que já aconteceu na
história humana".[195] O escritor também era crítico da vacinação, da proteção pessoal com a utilização de máscara e do confinamento.[196] Após a sua morte, políticos de extrema-direita, como o presidente da República Jair Bolsonaro e seus filhos, lamentaram o ocorrido.[197][198] Ministros, ex-ministros e parlamentares do mesmo espectro
político também se manifestaram.[199] No dia 25 de janeiro, o Palácio do Planalto emitiu nota oficial de pesar sobre sua morte. Segundo a nota, Olavo deixou como legado "um verdadeiro apostolado a respeito da vida intelectual" e teria inspirado e influenciado "dezenas de milhares de alunos e leitores - inclusive, levando muitos à conversão à fé'
[200] Olavo foi enterrado no Cemitério Saint Joseph em Petersburg, Virgínia, Estados Unidos, no dia 26 de janeiro. Em seu funeral, estiveram presentes familiares, o ex-chanceler Ernesto Araújo, o embaixador brasileiro nos Estados Unidos, Nestor Forster, e o blogueiro bolsonarista Allan dos Santos. [201] Apesar da falta de formação na área, [202]
duas ruas foram denominadas no Brasil como "Filósofo Olavo de Carvalho": em 10 de março de 2022, a Câmara Municipal de Porto Alegre repetiu o ato.[205] 1999 - Medalha do Pacificador[3] 2000 - Distinção honorífica da Ordem Nacional do
Mérito da Romênia[6] 2001 - Medalha do Mérito Santos-Dumont[5] 2012 - Medalha Tiradentes[4] 2019 - Ordem do Rio Branco, no grau de Grã-Cruz[206] A imagem do homem na astrologia. São Paulo: Speculum. 1983. Questões de simbolismo
astrológico. São Paulo: Speculum. 1983. Astrologia e religião. São Paulo: Nova Stella. 1986. Fronteiras da tradição. São Paulo: Nova Stella. 1986. Fronteiras da tradição. São Paulo: Nova Stella. 1986. Fronteiras da tradição. São Paulo: Nova Stella. 1985. Astrologia e religião. São Paulo: Nova Stella. 1986. Fronteiras da tradição. São Paulo: Nova Stella. 1985. Astrologia e religião. São Paulo: Nova Stella. 1986. Fronteiras da tradição. São Paulo: Nova Stella. 1986. Fronteiras da tradição.
Artes Liberais. 1992. Os gêneros literários: seus fundamentos metafísicos. 1993. O caráter como forma pura da personalidade. 1993. A nova era e a revolução cultural: Fritjof Capra & Antonio Gramsci. Rio de Janeiro: Instituto de Artes Liberais.
1994. O jardim das aflições: de Epicuro à ressurreição de César - Ensaio sobre o materialismo e a religião civil, Rio de Janeiro: Topbooks. 1996. O imbecil coletivo: atualidades inculturais brasileiras. Rio de Janeiro: Faculdade da Cidade. 1996. O
futuro do pensamento brasileiro. Estudos sobre o nosso lugar no mundo. 1998. O imbecil coletivo II: A longa marcha da vaca para o brejo e, logo atrás dela, os filhos da PUC, as quais obras juntas formam, para ensinança dos pequenos e escarmento dos grandes. Rio de Janeiro: Topbooks. 1998. O Exército na História do Brasil. Edição bilíngue
(português / inglês). 4 Vols. Rio de Janeiro/Salvador: Biblioteca do. Exército e Fundação Odebrecht, 1998. Coleção história essencial da filosofia. São Paulo: É Realizações. 2002-2006. A Dialética Simbólica - Ensaios Reunidos São Paulo: É Realizações. 2002-2006. A Dialética Simbólica - Ensaios Reunidos São Paulo: É Realizações. 2002-2006. A Dialética Simbólica - Ensaios Reunidos São Paulo: É Realizações. 2006. Maquiavel ou A Confusão Demoníaca São Paulo: Vide Editorial. 2011. A filosofia e seu Inverso
São Paulo: Vide Editorial. 2012. Os EUA e a nova ordem mundial (coautor Alexandre Dugin), São Paulo: Vide Editorial, 2012. Visões de Descartes entre o gênio mal e o espírito da verdade. Vide Editorial, 2013 O Mínimo que Você Precisa Saber para não Ser um Idiota, Felipe Moura Brasil (org.), 467 páginas, Rio de Janeiro: Record, 2013. Apoteose da
vigarice - Cartas de um terráqueo ao planeta Brasil (Volume I). São Paulo: Vide Editorial, 2014. A Fórmula para Enlouquecer o Mundo - Cartas de um terráqueo ao planeta Brasil (Volume II). Vide Editorial, 2014. A inversão revolucionária
em ação - Cartas de um terráqueo ao planeta Brasil (Volume V). Vide Editorial, 2016. O dever de insultar - Cartas de um terráqueo ao planeta Brasil (Volume V). Vide Editorial, 2016. Breve retrato do Brasil - Cartas de um terráqueo ao planeta Brasil (Volume V).
Brasil (Volume VII). Vide Editorial, 2017. Os Histéricos no Poder. Cartas de Um Terráqueo ao Planeta Brasil (Volume VIII). Vide Editorial, 2018. Como autor secundário Arthur Schopenhauer. Como vencer um debate sem precisar ter razão: em 38 estratagemas (dialética erística). Introdução, notas e comentários de Olavo de Carvalho. Rio de Janeiro
Topbooks, 1997. Otto Maria Carpeaux. Ensaios reunidos, 1942-1978. Organização, introdução e notas de Olavo de Carvalho. Rio de Janeiro: Record. 1999. René Guénon. A Metafísica Oriental. Tradução de Olavo de Carvalho. Mário
 Ferreira dos Santos - A Sabedoria das Leis Eternas. Introdução, edição de texto e notas de Olavo de Carvalho. É Realizações, 2001. Wolfgang Smith. O
Enigma Quântico. Prefácio à Edição Brasileira: Olavo de Carvalho. Vide Editorial, 2011. Andrew Lobaczewski. Ponerologia: Psicopatas no Poder. Com prefácio de Olavo de Carvalho. Vide Editorial, 2014. Anticomunismo Anti-intelectualismo Dogmatismo Pragmatismo ↑ As ocupações já exercidas pelo biografado incluem, mas não se limitam a:
jornalista,[9][10][11] ensaísta,[4][11][12] astrólogo,[13][14][15] ideólogo,[16][17][18] influenciador digital[19][20][21] e pensador.[22][23] ↑ Apesar das provas de interferências estadunidenses na ditadura brasileira, não há evidências de que Charles Rodney tenha treinado torturadores. As fontes anglófonas apontam que o mesmo estava no Brasileira, não há evidências de que Charles Rodney tenha treinado torturadores. As fontes anglófonas apontam que o mesmo estava no Brasileira, não há evidências de que Charles Rodney tenha treinado torturadores.
para estudar a língua portuguesa. Sua ligação com a CIA também nunca foi esclarecida. ↑ As fontes não detalham quando ou como Olavo de Carvalho teria exposto a entrevista e a concedido, em furo jornalístico, para o Jornal do Brasil. Mas a fonte referida, informa que o artigo publicado por Olavo no mesmo jornal, onde ele detalha fatos que
ocorreram após esse processo, é de 30 de agosto de 2007. ↑ Erro de citação: Etiqueta inválida; não foi fornecido texto para as refs de nome Teitel ↑ "Bolsonaro comenta foto de Olavo de Carvalho em hospital e preocupa fãs". iG. ↑ a b «Secretaria-Geral do Exército - Portaria nº 391, de 21 de julho de 1999. Medalha do Pacificador - outorga.».
Consultado em 22 de Julho de 2016 ↑ a b c d Bolsonaro, Flávio. «Projeto de Resolução nº 536/2011. Ementa: concede a medalha Tiradentes e o respectivo diploma ao filósofo, escritor, jornalista e conferencista Olavo Luiz Pimentel de Carvalho.». Consultado em 22 de Julho de 2016. Cópia arquivada em 14 de setembro de 2016 ↑ a b Poder
Legislativo; Dep. Flávio Bolsonaro (30 de novembro de 2011). «Diário Oficial do Estado do Rio de Janeiro (DOERJ)». Projeto de Resolução Nº 536/2011 concede a Medalha Tiradentes e o respectivo diploma ao jornalista, ensaísta e conferencista Olavo Luiz
Pimentel de Carvalho. (...) Foi homenageado com a Medalha do Pacificador, Medalha Mérito Santos Dumont, Comendador da (Ordem Nacional do Mérito da Reino da Arábia Saudita. 1 a b «Camera Deputatilor - DECRET nr.581 din 5 decembrie
2000, privind conferirea Ordinului național Pentru Merit.» (em romeno). Consultado em 22 de julho de 2016 ↑ «O Jornalista e Católico - Amor Mariano. 24 de setembro de 2013 ↑ olavodecarvalho.org/dados-biograficos/ "Olavo de Carvalho, nascido em Campinas, Estado
de São Paulo, em 29 de abril de 1947, [...]" ↑ «Olavo de Carvalho pede que ex-alunos deixem governo: quem são esses nomes?». UOL ↑ «Olavo de Carvalho ataca generais do governo Bolsonaro». Poder360 ↑ a b c «Folha de S.Paulo - Diálogos impertinentes: A abrangência da moral - 25/10/98». www1.folha.uol.com.br. Consultado em 12 de maio de
2017 ↑ Messenberg, Débora (2017). «A direita que saiu do armário: a cosmovisão dos formadores de opinião dos manifestantes de direita brasileiros». Sociedade e Estado. 32 (3): 621-648. ISSN 0102-6992. doi:10.1590/s0102-6992. doi:10.1590/s0102-699
de janeiro de 2010. Consultado em 13 de fevereiro de 2017 ↑ João Fellet (15 de dezembro de 2016). «Olavo de Carvalho, o 'parteiro' da nova direita que diz ter dado à luz flores e lacraias». BBC Brasil. Consultado em 23 de dezembro de 2016 ↑ a b «De astrólogo a quru intelectual do clã Bolsonaro: conheça a trajetória de Olavo de Carvalho». Fórum
25 de novembro de 2018. Consultado em 11 de abril de 2019 ↑ «Olavo, o ideólogo». Istoé. 23 de novembro de 2018 ↑ «Entidade condena crítica de Olavo de carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Entidade condena crítica de Olavo de Carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Entidade condena crítica de Olavo de Carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Entidade condena crítica de Olavo de Carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Entidade condena crítica de Olavo de Carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Entidade condena crítica de Olavo de Carvalho à imprensa». Folha de S.Paulo. 18 de dezembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo». Istoé. 20 de novembro de 2018 ↑ «Olavo, o ideólogo».
Intercept ↑ As frases que marcaram a semana. Veja, 22 mar 2019. ↑ "Bando de cagão com medo da mídia", é assim que Olavo de Carvalho se refere aos militares no governo. Por Lilian Milena. GGN, 18 de março de 2019. ↑ a b Barreto, Marcelo
Menna (2018). «Olavo de Carvalho: o guru autodidata de Bolsonaro. Extra Classe. Cópia arquivada em 10 de fevereiro de 2019 ↑ a b «Quem é o pensador que faz a cabeça de Jair Bolsonaro. Ex-astrólogo, já emplacou dois nomes no governo». O Povo.
26 de novembro de 2018 ↑ Ribeiro, Weudson (16 de janeiro de 2021). «Com covid, Olavo de Carvalho cancela transmissão de aulas online». UOL Cotidiano. Cópia arquivada em 16 de janeiro de 2021 ↑ «O filósofo de Bolsonaro». Le Monde
Diplomatique Brasil. Consultado em 19 de maio de 2024 ↑ «Imprensa internacional ridiculariza Olavo de Carvalho após sua morte». Revista Fórum. 25 de janeiro de 2022. Consultado em 20 de maio de 2024 ↑ Rodrigues, Lidiane Soares (2018). «Uma revolução conservadora dos intelectuais (Brasil/2002-2016)». Política & Sociedade. 17 (39): 277-
312. ISSN 2175-7984. doi:10.5007/2175-7984.2017v17n39p277 ↑ Duarte, Letícia (28 de dezembro de 2019). «Meet the Intellectual Founder of Brazil's Far Right». The Atlantic. ISSN 1072-7825 ↑ «After Capitol Hill Fury, Bolsonaro 'Guru' in US Spreads Conspiracy Theories». POLYGRAPH.info (em inglês). 14 de janeiro de 2021. Consultado em 7 desembro de 2019).
março de 2021 ↑ a b c d e f q h i j k João Fellet (15 de dezembro de 2016). «Olavo de Carvalho, o 'parteiro' da nova direita que diz ter dado à luz flores e lacraias». BBC Brasil. Consultado em 23 de dezembro de 2016. Um ano após o golpe militar de 1964, ele escreveu para o jornal do centro acadêmico da Faculdade de Direito da USP, que se opunha
à ditadura. Em retribuição pelo trabalho, diz que foi convidado a dividir um apartamento com Rui Falcão, então aluno de direito e hoje presidente nacional do PT. ↑ a b Guedes, Diogo (9 de julho de 2017). «Olavo de Carvalho, pensador que desperta opiniões antagônicas». Jornal do Commercio. Cópia arquivada em 29 de março de 2020. "Para alguns,
Olavo é o grande gênio injustiçado da cultura brasileira. É mais do que um pensador importante: chamado normalmente de "mestre" ou "professor", é tido como a única voz autossuficiente da intelectualidade brasileira, que vai, com profundidade, contra a corrente da obviedade dos acadêmicos, do status quo, enfim, dos modelos estabelecidos. 1 a b
«Militares entram na mira de Olavo de Carvalho, 'guru' de Bolsonaro». Metro1. 18 de março de 2019. Consultado em 18 de março de 2019.
parlamentares do PSL de semianalfabetos e caipiras». Estado de Minas. 17 de janeiro de 2019. Consultado em 18 de março de 2019. ↑ a b «Guru de Bolsonaro, Olavo de Carvalho reforça crítica ao Escola sem Partido: "Colocaram a carroça na frente dos bois"». GaúchaZH. 23 de novembro de 2018. Consultado em 18 de março de 2019. ↑ a b «Olavo
de Carvalho: 'Eu sou o guru dessa porcaria?'». Veja. 17 de janeiro de 2019. Consultado em 18 de março de 2019. Clavo reiterou que não se vê como guru do governo Bolsonaro». O Globo. 17 de março de 2019. Consultado em 18 de março de 2019. Olavo reiterou que não se vê como guru do governo Bolsonaro e
atacou a mídia. ↑ Mário Magalhães (15 de dezembro de 2016). «A estranha obsessão de Olavo de Carvalho pelo furico alheio». The Intercept. Consultado em 16 de outubro de 2019 ↑ Costa, Ana Clara; Ghirotto, Edoardo (30 de novembro de 2018). «"Eu sou o segundo governo"». Veja. Cópia arquivada em 10 de fevereiro de 2019. Quem é o guru da
direita que conquista fiéis com cursos on-line e vocabulário obsceno, ensinará filosofia a parlamentares e indica ministros para Bolsonaro 1 José Antônio (15 de dezembro de 2016), «Corram, os comunistas estão chegando». CartaCapital, Consultado em 16 de outubro de 2019, Cópia arquivada em 11 de outubro de 2015 1 Olavo de Carvalho e Stefan
Molyneux - Youtube (26 de julho de 2017). «Why Cultural Marxism Matters». Olavo de Carvalho - Website Oficial. Consultado em 16 de outubro de 2014). «O que é marxismo cultural? Uma abordagem à esquerda». Colunas Tortas. Consultado em 16 de outubro de 2019. Cópia arquivada em 14 de maio de
2017 ↑ Carla Jiménez (11 de dezembro de 2018). «"Anti-marxista" indicado por Olavo de Carvalho será ministro da Educação». Colunas Tortas. Consultado em 16 de outubro de 2018). «From preachers to comedians: Ideal types of hate speakers in Brazil». Global Media and Communication.
Consultado em 16 de outubro de 2019 ↑ Fausto, Ruy (2017). Caminhos da esquerda: elementos para uma reconstrução. São Paulo: Companhia das Letras. OCLC 1030610765. Para se ter uma ideia de odio, extraída de uma das suas obras recentes: "Quem quer que estude
as vidas de cada um deles descobrirá que Voltaire, Diderot, Jean-Jacques Rousseau, Sade, Karl Marx, Tolstói, Bertolt Brecht, Lênin, Stálin, Fidel Castro, Che Guevara, Mao Tse-tung, Bertrand Russell, Jean-Paul Sartre, Max Horkheimer, Theodor Adorno, Georg Lukács, Antonio Gramsci, Lillian Hellman, Michel Foucault, Louis Althusser, Norman Mailer,
Noam Chomsky e tutti quanti foram indivíduos sádicos, obsessivamente mentirosos, aproveitadores cínicos, vaidosos até à demência, desprovidos de qualquer sentimento moral superior e de qualquer sentimento moral sentimento moral sentimento moral sentimento moral sentimento moral sentimento de s
estupradores ou exploradores de mulheres, opressores de suas esposas e filhos. Outros, orgulhosamente pedófilos. Em suma, o panteão dos ídolos do esquerdismo universal era uma galeria de deformidades morais de fazer inveja à lista de vilões da literatura universal. De fato, não se encontrará entre os
personagens de Shakespeare, Balzac, Dostoiévski e demais clássicos nenhum que se compare, em malícia e crueldade, a um Stálin, a um Hitler ou a um Mao Tse-tung" ↑ «Brasil, um país do passado». DW.com. 28 de novembro de 2018. Consultado em 16 de outubro de 2019 ↑ Teitelbaum, Benjamin R. (21 de abril de 2020). «20-Deep States». War for
Eternity: Inside Bannon's Far-Right Circle of Global Power Brokers (em inglês), [S.l.]: HarperCollins, ISBN 978-0-06-297847-9. I was beginning to understand why a reader of Guénon would become a champion of Bolsonaro. Olayo's focus on Traditionalism's opposition to modern science, though seemingly an applitical subject, may have been more
relevant to his analysis of political and social life than I first thought. In writing and in conversation he waxes seamlessly from criticisms of the institutions whose authority rests obliquely on modernist knowledge. It is in that final step when Traditionalism and populism can come
together, when we can draw a line between astrology, alchemy, and the president. Not only are Brazil's media, education system, and government corrupted by money and self-interests in his mind, but they are purveyors of ignorance, too, because of their blind investment in modern science and its inability to account for, let alone value, spirituality.
The only immateriality they will admit is the abstractions of mathematics, which themselves serve to confuse as well, Olavo contends. Like Bannon, Olavo finds a trace of solace among the poor and uneducated, those most distanced from institutionalized education and knowledge production. In Brazil as in the United States, they are the keepers of
spirit, those who have achieved a measure of community and context otherwise elusive in modern institutions. They are reality. They are the core. 1 João Fellet (15 de dezembro de 2016). «Olavo de Carvalho, o 'parteiro' da nova direita que diz
ter dado à luz flores e lacraias». BBC News Brasil. Consultado em 16 de outubro de 2019 ↑ Lucas Patschiki (15 de dezembro de 2019) ↑ Dantas, Dimitrius (10
de fevereiro de 2019). «Olavo de Carvalho está errado e não entendeu Kant, dizem três nomes de destaque da academia brasileira». O Globo. Consultado em 16 de outubro de 2019. Professores universitários debatem licões dadas em aula on-line daquele que é considerado o 'guru' do novo governo î
Secches, Fabiane (14 de dezembro de 2018). «Esnobado por intelectuais, Olavo de Carvalho dominou vídeo e redes sociais». Folha de S.Paulo. Cópia arquivada em 12 de junho de 2018). «Única coisa rigorosa no discurso de Olavo são os palavrões, diz Ruy Fausto». Folha de S.Paulo. Consultado em 16 de
outubro de 2019. Cópia arquivada em 19 de outubro de 2019 ↑ Lima, Luciana (10 de fevereiro de 2020). «Olavo de Carvalho frequentava casa da esquerda estudantil em SP». Metrópoles. Consultado em 21 de fevereiro de 2020). «Olavo chegou a se filiar ao PCB em 1966, dois anos após o golpe militar. Ele permaneceu no partido até 1968. A partir da
década de 1970 mudou completamente de lado. [...] "Eu morava na Casa do Estudante e o Olavo de Carvalho era simpatizante do Partido Comunista Brasileiro (antigo PCB). Ele chegou a trabalhar comigo na Gazeta, e ia lá na Casa do Estudante conversar e tal. Uma vez ou outra ele dormiu lá. ↑ Scarpin, Paula (1 de maio de 2018). «Escrito nas
estrelas - Fazer mapa astral em ano eleitoral». Revista Piauí. Consultado em 22 de fevereiro de 2025. "Na época ele era filiado ao Partido Comunista", disse Abramo. "Dizia para lermos Aristóteles e tinha uma visão mais filosófica da astrologia. Aprendi muito com ele." ↑ Fellet, João (15 de dezembro de 2016). «Olavo de Carvalho
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Consultado em 9 de novembro de 2019. Arquivado do original em 22 de janeiro de 2018 ↑ «Documentário sobre Olavo de Carvalho ganha primeiro teaser - Portal AZ». Portal AZ. Consultado em 12 de maio de 2017 ↑ Sul/FUA, Jornal Cruzeiro do. «Guto Brinholi faz música para filme sobre Olavo de Carvalho ganha primeiro teaser - Portal AZ».	Olavo de Carvalho». Jornal Cruzeiro do Sul 1 «O que esperar
do cinema brasileiro em 2016». Omelete ↑ «Cineasta cria documentário baseado na obra filosófica de Olavo de Carvalho». Correio Braziliense. 19 de julho de 2016 ↑ «Curtas, longas e vídeos pernambucanos buscam ajuda na internet para sair do papel». Diário de Pernambuco. 30 de junho de Londrina - O Jornal do Paraná - Brasil». Folha de Londrina ↑ «Filme sobre Olavo de Carvalho é o grande vencedor do Cine PE; confira premiados». Folha de Pernambuco. 3 de julho de 2017. Consultado em 12 de agosto de 2017 ↑ Pessoa, Breno (3 de julho de 2017). «Filme sobre Olavo de Carvalho».	de Carvalho é o grande vencedor do Cine PE». Diário de
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outubro de 2017). «Olavo de Carvalho, o guru da direita que rejeita o que dizem seus fãs». epoca.globo.com. Consultado em 23 de fevereiro de 2025. Foi ali. No meio da década de 1990, o autodidata, astrólogo, jornalista, que estudara desenho artístico e cinema, se tornaria "o filósofo conse Ochoa, Valeria (23 de novembro de 2018). «Olavo de Carvalho: o guru autodidata de Bolsonaro». Extra Classe. Consultado em 23 de fevereiro de 2025. Um dos principais representantes do conservadorismo no Brasil, Carvalho é filósofo autodidata. ↑ Santana, Henrique; Rocha, Camila (25 de novembro de 2018).	ervador Olavo de Carvalho", como é conhecido até hoje. ↑
de Carvalho e como ele pode influenciar a política nacional». Le Monde Diplomatique. Le Monde Diplomatique Brasil. Consultado em 23 de fevereiro de 2025. A partir de 2014, o filósofo autodidata, que não chegou a concluir sua formação acadêmica, ganhou popularidade na internet e pass	sou a influenciar grupos conservadores de todo o país 1
Olavo de Carvalho (5 de novembro de 2013). «Perfil de Olavo de Carvalho». Facebook. Consultado em 1 de novembro de 2019. Informo aos interessados que jamais prestei um vestibular, não tentei e não poderia fazê-lo. Minha inscrição, se a fizesse, jamais seria aceita. Saí da escola no quar decidido a buscar instrução por vias alternativas. Pelos resultados obtidos, acho que fiz a coisa ↑ McCoy, Terrence (14 de julho de 2019). «He's the Rush Limbaugh of Brazil. He has Bolsonaro's ear. And he lives in rural Virginia.» (em inglês). The Washington Post. Consultado em 5 de nov	vembro de 2019. ↑ «Visto EB-1A e Green Card G.E.B.
GLOBAL Estados Unidos». G.E.B. GLOBAL. Consultado em 23 de fevereiro de 2025 ↑ a b «Vazam documentos do guru de Bolsonaro: green card está expirando». Catraca Livre. 27 de maio de 2019. Consultado em 29 de dezembro de 2020. Esse seria o documento (abaixo) que comprovari porém, é quais documentos foram mostrados: afinal, Olavo de Carvalho não preenche os requisitos, segundo vários advogados consultados pela Catraca Livre. ↑ «Olavo de Carvalho». theinteramerican.org (em inglês). The Inter-American Institute. Consultado em 11 de maio de 2017. Arquiva de Carvalho».	
Carvalho morre oito dias após ser diagnosticado com Covid». G1. 25 de janeiro de 2022. Consultado em 25 de janeiro de 2022. ↑ «Perfil oficial de Olavo de Carvalho anuncia seu falecimento - 25/01/2022 - UOL Notícias». noticias.uol.com.br. Consultado em 25 de janeiro de 2022. ↑ «Filha de R7.com. 25 de janeiro de 2022. Consultado em 25 de janeiro de 2022. ↑ «Historinha de terror para acovardar a populaçã	e Olavo de Carvalho diz que pai morreu de Covid-19».
de janeiro de 2022. Consultado em 25 de janeiro de 2022 1 «"Essa epidemia simplesmente não existe", diz Olavo de Carvalho». Poder360. 23 de março de 2020 1 Minas, Estado de (23 de março de 2020). «YouTube remove video em	que Olavo de Carvalho mente ao dizer que pandemia nao
existe». Estado de Minas. Consultado em 25 de janeiro de 2022 ↑ «Bolsonaro lamenta morte de Olavo de Carvalho: 'Farol para os brasileiros'». noticias.uol.com.br. Consultado em 25 de janeiro de 2022 ↑ MIGUEL, Luis Felipe. O mito da "ideologia de gênero" no discurso da extrema direita feministas da política", apoiada por recursos do edital FAP-DF nº 3/2015 Cadernos Pagu [online]. 2021, n. 62 [Acessado 26 Janeiro 2022], e216216. Disponível em: < . Epub 20 Ago 2021. ISSN 1809-4449 ↑ «Políticos reagem à morte de Olavo de Carvalho». Poder360. 25 de janeiro de 2021 de janeiro de 2021.	022. Consultado em 25 de janeiro de 2022 ↑ «Nota Oficial -
Nota de pesar pelo falecimento do Professor Olavo de Carvalho - 25/01/2022». Palácio do Planalto. 25 de janeiro de 2022. Consultado em 28 de janeiro de 2022). «Olavo de Carvalho é enterrado nos EUA em funeral com Allan dos Santos e Ernesto 2022 ↑ «Rua batizada em homenagem a Olavo de Carvalho no RS é uma vila de 30 metros que não passa carro; veja mapa». O Globo. Consultado em 9 de setembro de 2022). «Câmara aprova nome de Olavo de Carvalho para rua na região do Éden	
«DYLAN DANTAS COMEMORA DENOMINAÇÃO DE RUA EM HOMENAGEM AO FILÓSOFO OLAVO DE CARVALHO». www.camarasorocaba.sp.gov.br. Consultado em 12 de março de 2022 ↑ «Porto Alegre terá rua com o nome de Olavo de Carvalho». CartaCapital. 6 de setembro de 2022. © mais alta condecoração diplomática a Olavo de Carvalho». Poder360. 1 de maio de 2019 ↑ Obra disponível online como A nova era e a revolução cultural: Fritjof Capra & Antonio Gramsci, 3.ª edição, revista e aumentada. Dantas, Dimitrius (10 de fevereiro de 2019). «Olavo de Carvalho» está	Consultado em 7 de setembro de 2022 ↑ «Bolsonaro concede
da academia brasileira». O Globo. Cópia arquivada em 10 de fevereiro de 2019 Fausto, Ruy (2019). «Sofística e polícia política». Revista piauí. Cópia arquivada em 27 de julho de 2022 Patschiki, Lucas (2012). OS LITORES DA NOSSA BURGUESIA: o Mídia Sem Máscara em Atuação Partida	ária (2002-2011) (Dissertação de Mestrado em História).
Marechal Cândido Rondon: Universidade Estadual do Oeste do Paraná Peres, Daniel Tourinho (12 de fevereiro de 2019). «Quão obscurantista é o emplasto filosófico de Olavo de Carvalho?». Le Monde Diplomatique. Cópia arquivada em 16 de fevereiro de 2019 Salgado, Daniel (27 de novem número 30. Cópia arquivada em 16 de fevereiro de 2019 Outros projetos Wikimedia também contêm material sobre este tema: Citações no Wikiquote Categoria no Commons Wikiquote Wikinotícias O negacionismo científico olavista: a radicalização de um	n certo regime epistemológico, por Rodrigo Perez Oliveira
Portal da literatura Portal de biografias Portal do conservadorismo Portal do jornalismo Portal da política Portal de São Paulo Obtida de " 2 ◀ Abril ► Dom Seg Ter Qua Qui Sex Sáb 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 Ano: 2025 Déca ano no calendário gregoriano (120.º em anos bissextos). Faltam 246 dias para acabar o ano. 1429: Joana d'Arc rompe o Cerco de Orleães. 1975: Operação Vento Constante. 0801 — Um terremoto nos Apeninos Centrais atinge Roma e Spoleto, danificando a basílica de San Paolo Fuori le Mur	
derrotados pelo imperador romano-oriental Aleixo I Comneno. 1429 — Joana d'Arc rompe o Cerco de Orleães. 1483 — Grã-Canária, a principal ilha das Canárias, é conquistada pelo Reino de Castela. 1760 — As forças francesas iniciam o cerco de Quebec, que é mantido pelos britânicos.[1] 1 nomeia.[2] 1781 — Guerra de Independência dos Estados Unidos: navios britânicos e franceses se enfrentam na Batalha de Fort Royal, na costa da Martinica.[3] 1826 — A galáxia Centaurus A ou NGC 5128 é descoberta por James Dunlop.[4] 1862 — Guerra Civil Americana: Nova Orleans é	1770 — James Cook chega à Austrália em Botany Bay, que ele
David Farragut.[5] 1910 — O Parlamento do Reino Unido aprova o Orçamento do Povo, o primeiro orçamento da história britânica com a intenção expressa de redistribuir a riqueza entre o público britânico. 1911 - Fundação da Universidade Tsinghua, uma das principais universidades da Ci	China. 1916 Primeira Guerra Mundial: uma divisão indiana do
Reino Unido se rende às Forças Otomanas no Cerco de Kut em uma das maiores rendições das forças britânicas até aquele ponto. Revolta da Páscoa: após seis dias de luta, os líderes rebeldes irlandeses se rendem às forças britânicas em Dublin, pondo fim à revolta. 1938 — Getúlio Vargas c para que o governo pudesse controlar o produto. 1945 — Segunda Guerra Mundial: Wehrmacht rende-se incondicionalmente aos aliados na Itália. Führerbunker: Adolf Hitler se casa com sua parceira de longa data Eva Braun em um búnquer de Berlim e designa o almirante Karl Dönitz com	o seu sucessor; Hitler e Braun cometem suicídio no dia
seguinte. Fornovo di Taro é libertada das tropas da Alemanha Nazista pela Força Expedicionária Brasileira. Campo de concentração de Dachau é libertado pelas tropas dos Estados Unidos. 1946 — O Tribunal Militar Internacional para o Extremo Oriente convoca e indicia o ex-primeiro-ministrimes de guerra. 1951 — Delegados tibetanos chegam a Pequim e assinam um Acordo de Dezessete Pontos para a soberania chinesa e a autonomia tibetana. 1953 — A primeira exibição experimental de televisão 3D nos Estados Unidos exibe um episódio de Space Patrol na afiliada da ABC	
produto da contracultura hippie e da revolução sexual dos anos 1960, estreia no Biltmore Theatre na Broadway, com algumas de suas canções tornando-se hinos do movimento anti-Guerra do Vietnã: forças estadunidenses e sul-vietnamitas invadem o Camboja em produto da contracultura hippie e da revolução sexual dos anos 1960, estreia no Biltmore Theatre na Broadway, com algumas de suas canções tornando-se hinos do Movimento anti-Guerra do Vietnã: forças estadunidenses e sul-vietnamitas invadem o Camboja em produto da contracultura hippie e da revolução sexual dos anos 1960, estreia no Biltmore Theatre na Broadway, com algumas de suas canções tornando-se hinos do Movimento anti-Guerra do Vietnã: forças estadunidenses e sul-vietnamitas invadem o Camboja em produto da contracultura hippie e da revolução sexual dos anos 1960, estreia no Biltmore Theatre na Broadway, com algumas de suas canções tornando-se hinos do Movimento anti-Guerra do Vietnã: forças estadunidenses e sul-vietnamitas invadem o Camboja em produto dos Estados Unidos começam a evacuar cidadãos estadunidenses de Saigon antes de uma esperada invasão dos norte-vietnamitas. O envolvimento dos Estados Unidos na querra chega ao fim. 1988 — Glasnost: o secretário-geral do Partido Comunista da União Soviética Mikhail Go	
torcedores do Liverpool FC, da Inglaterra, foram condenados à prisão; os hooligans iniciaram uma briga que matou 41 pessoas durante um jogo de futebol. 1990 — Beatificação dos Santos Irmãos Mártires de Turón pelo Papa João Paulo II. 1991 Um ciclone atinge o distrito de Chitagongue, matando pelo menos 138 000 pessoas e deixando até dez milhões de desabrigados. O terremoto em Racha de 7,0Mw afeta a Geórgia matando 270 pessoas, deixando aproximadamente 100 000 desabrigados e causando graves danos, inclusive a vários monumentos medievais.[6] 1992 — Dist	no sudeste de Bangladesh, com ventos de cerca de 249 km/h,
de policiais acusados de força excessiva contra Rodney King. 53 pessoas morreram e centenas de edifícios foram destruídos. 1997 — Entra em vigor o Acordo Internacional sobre Proibição de Armas Químicas. Rússia e Cuba não assinam. 2004 — Oldsmobile constrói seu último carro encerra	ando com 107 anos de produção. 2011 — Casamento de
Guilherme de Gales e Catherine Middleton é realizado na Abadia de Westminster em Londres. 2015 — Ocorre em Curitiba, Brasil, a Batalha do Centro Cívico. 2016 — Última edição do Jornal do Commercio, o jornal mais antigo em circulação na América Latina. 0912 — Minamoto no Mitsuna Duquesa da Pomerânia (m. 1635). 1675 — Giovanni Antonio Pellegrini, pintor italiano (m. 1741). 1727 — Jean-Georges Noverre, bailarino francês (m. 1810). 1745 — Oliver Ellsworth, político e jurista britânico (m. 1807). 1762 — Jean-Baptiste Jourdan, militar francês (m. 1833). 1780 — Charles	rles Nodier, escritor francês (m. 1844). 1818 — Alexandre 2.º
da Rússia (m. 1881). 1823 — Daniel Harrwitz, enxadrista alemão (m. 1884). 1831 — Frederico 1.º de Anhalt (m. 1904). 1833 — Arsênio da Silva, pintor e fotógrafo brasileiro (m. 1883). 1837 — Georges Boulanger, general e político francês (m. 1891). 1840 — Simões Raposo, professor e peda político, escritor e filósofo brasileiro (m. 1905). 1854 — Henri Poincaré, matemático francês (m. 1912). 1860 — Paul Évariste Parmentier, botânico francês (m. 1941). 1863 William Randolph Hearst, editor estadunidense (m. 1951). Konstantínos Kaváfis, poeta grego (m. 1933). 1870 — Osório	
1927). 1876 — Zauditu da Etiópia (m. 1930). 1879 — Thomas Beecham, maestro britânico (m. 1961). 1880 — Ali Fethi Okyar, político e diplomata turco (m. 1943). 1884 — Jaime Cortesão, escritor e historiador português (m. 1957). 1893 — Amílcar Barbuy, futebolista e treinador de futebol be (m. 1970). 1895 Vladimir Propp, linguista e antropólogo russo (m. 1970). 1896 — Natalie Talmadge, atriz estadunidense (m. 1969). 1898 — Ellen Brockhöft, patinadora artística alemã (m. 1977). 1899 — Duke Ellington,	brasileiro (m. 1965). 1894 — Marietta Blau, física austríaca
1901 — Hirohito, imperador japonês (m. 1989). 1903 — Nikolai Krylov, marechal russo (m. 1972). 1905 — Hal Pereira, diretor de arte estadunidense (m. 1983). 1906 — Pedro Vargas, cantor e ator mexicano (m. 1989). 1907 Tino Rossi, ator e cantor francês (m. 1983). Fred Zinnemann, diretor	or de cinema austríaco-americano (m. 1997). 1909 — Lazăr
Sfera, futebolista romeno (m. 1992). 1910 — Dolly Haas, atriz e cantora norte-americana (m. 1994). 1912 — Richard Carlson, ator, diretor e roteirista estadunidense (m. 1977). 1913 — Edgar Ablowich, velocista norte-americano (m. 1998). 1914 — Cal Niday, automobilista estadunidense (m. 1917). 1917 Celeste Holm, atriz estadunidense (m. 2012). Urie Bronfenbrenner, psicólogo norte-americano (m. 2005). 1919 — Gérard Oury, ator, diretor e roteirista francês (m. 2006). 1920 — Aleksandar Atanacković, futebolista sérvio (m. 2005). 1921 — Tommy Noonan, ator, produtor e roteirista	norte-americano (m. 1968). 1922 — Toots Thielemans,
músico belga (m. 2016). 1924 — David Landes, historiador e economista norte-americano (m. 2013). 1925 — Iwao Takamoto, animador, produtor e diretor estadunidense (m. 2007). 1926 — Paul Baran, engenheiro de computadores polonês-americano (m. 2011). 1927 Ted Burgin, futebolista 2018). 1930 — Jean Rochefort, ator francês (m. 2017). 1931 — Frank Auerbach, pintor teuto-britânico. (m. 2024). 1933 Mark Eyskens, político e economista belga. Rod McKuen, poeta, cantor e compositor americano (m. 2015). Willie Nelson, cantor, compositor, escritor e ator estadunidense	
Ashley, modelo, autora e ativista dos direitos LGBT inglesa (m. 2021). Gundi Busch, patinadora artística e treinadora de patinação alemã (m. 2014). 1936 Alejandra Pizarnik, escritora e poetisa argentina (m. 1972). Dedé Santana, ator, apresentador, humorista e roteirista brasileiro. Adolfo N Barão Rothschild (m. 2024). 1937 — Ramón Abeledo, ex-futebolista argentino. 1938 Bernard Madoff, empresário estadunidense (m. 2021). Klaus Voormann, artista gráfico, músico e produtor musical alemão. 1940 — Marcelino Martínez, ex-futebolista espanhol. 1941 — Nana Caymmi, canto	
historiador e professor britânico. 1944 Benedita da Dinamarca. Francis Lee, futebolista britânico (m. 2023). Liu Chuanzhi, empresário chinês. Hermann Scheer, político alemão (m. 2010). 1945 Richard Warwick, ator inglês (m. 1997). Tammi Terrell, cantora estadunidense (m. 1970). 1946 H. Wayne Robson, ator canadense (m. 2011). 1947 Olavo de Carvalho, livre-pensador e jornalista brasileiro (m. 2022). Va'aletoa Sualauvi II, político samoano. 1948 — Guto Graça Mello, compositor e produtor musical brasileiro. 1949 Roberto Talma, diretor de televisão brasileiro (m. 2015). Ani	Iumphrey Carpenter, escritor e radialista britânico (m. 2005).
Zola, cantora suíça. Luís Miguel Cintra, encenador, ator e tradutor português. Nuno Júdice, ensaísta e poeta português (m. 2024). 1951 Dale Earnhardt, automobilista estadunidense (m. 2001). Vinícius Cantuária, cantor e compositor brasileiro. Patrick Chabal, historiador e africanista francê	ês (m. 2014). 1952 — Barbara Hendricks, política alemã. 1953
— Jan A. P. Kaczmarek, compositor polonês (m. 2024). 1954 Jerry Seinfeld, comediante, ator e produtor estadunidense. Mo Brooks, político norte-americano. 1955 Kate Mulgrew, atriz estadunidense. Leslie Jordan, ator e escritor norte-americano (m. 2022). 1956 — Kevin Moran, ex-futebolis Mata'afa, política samoana. 1958 Michelle Pfeiffer, atriz estadunidense. Martin Whitmarsh, empresário e dirigente automobilístico britânico. Giovanni Galli, ex-futebolista e político italiano. 1959 — Luiz Felipe Pondé, filósofo e escritor brasileiro. 1960 Gerard Joling, cantor e apresentador de	
engenheiro, professor e historiador brasileiro. 1962 — Márcio Máximo, treinador de futebol brasileiro. 1963 Raúl Servín, ex-futebolista mexicano. Izzy Gordon, cantora brasileira. 1965 Felipe Miñambres, ex-futebolista e treinador de futebol espanhol. Michel Bussi, escritor francês. Peter Rau Ramón Medina Bello, ex-futebolista argentino. Vincent Ventresca, ator estadunidense. 1967 — Attila Ábrahám, ex-canoísta húngaro. 1968 Néstor Fabbri, ex-futebolista argentino. Kolinda Grabar-Kitarović, política croata. Jürgen Vogel, ator, produtor, diretor e cantor alemão. 1969 Paul Adels	
francês. 1970 Uma Thurman, atriz estadunidense. Andre Agassi, ex-tenista estadunidense. 1971 — Sam Michael, engenheiro automobilístico australiano. 1972 Marcelo Dourado, ex-lutador, personal trainer e empresário brasileiro. Derek Mears, ator estadunidense. Mariusz Siudek, ex-patina	ador artístico polonês. Marko Rehmer, ex-futebolista alemão.
1973 — David Belle, desportista e ator francês. 1974 — Pascal Cygan, ex-futebolista francês. 1975 Fábio Luciano, ex-futebolista brasileiro. Mateusz Kusznierewicz, ex-velejador polonês. 1976 Fabio Liverani, ex-futebolista e treinador de futebol italiano. Maja Savić, ex-handebolista monteneg Bryan, ex-tenista estadunidense. Mike Bryan, ex-tenista estadunidense. Mike Bryan, ex-tenista estadunidense. Tyler Labine, ator canadense. 1979 Ryan Sharp, automobilista britânico. Jo O'Meara, atriz, dançarina e cantora britânica. Tati Bernardi, escritora e roteirista brasileira. Lee Dong-gook, ex-futebolista sul-coreano. 1980 D	Daniela Fontan, atriz brasileira. Kian Egan, músico irlandês.
1981 — Alex Vincent, ator estadunidense. 1982 — Carlos Martins, ex-futebolista português. 1983 Megan Boone, atriz estadunidense. Semih Şentürk, ex-futebolista turco. 1984 Paulius Jankūnas, jogador de basquete lituano. Michał Gołaś, ex-ciclista polonês moçambicana. Jay Lethal, lutador profissional norte-americano. 1986 Monique Alfradique, atriz brasileira. Francesco Pisano, futebolista italiano. Crystal Harris, modelo estadunidense. 1987 Joanna Maranhão, ex-nadadora brasileira. Sara Errani, tenista italiana. Suelle Oliveira, jogadora de v	vôlei brasileira. Jeff Ayres, jogador de basquete norte-
americano. 1988 Cameron Girdlestone, canoísta australiano. Younha, cantora e compositora sul-coreana. Thomas Plössel, velejador alemão. 1989 Sophie Charlotte, atriz brasileira. Guido Burgstaller, futebolista austríaco. Foxes, cantora, compositora e modelo britânica. Domagoj Vida, futebo Akeem Vargas, jogador de basquete estadunidense. 1991 Carlos Barbero, ex-ciclista espanhol. 1993 Justin Thomas, golfista estadunidense. Mate Delić, tenista croata. 1994 Marcelino Sambé, bailarino português-guine	
Ferreira, taekwondista português. 1996 Ayami Muto, cantora e modelo japonesa. Kobe Goossens, ciclista belga. 1997 Lucas Tousart, futebolista francês. El Hijo del Vikingo, wrestler mexicano. 1998 MC Kevin, cantor e compositor brasileiro (m. 2021). Mallory Pugh, futebolista norte-america Sébastien Grignard, ciclista belga. Mateo Retegui, futebolista ítalo-argentino. Guto Zacarias, político brasileiro. 2001 — Johannes Pietsch, cantor e compositor brasileiro. 2005 Shahadi Wright Joseph, atriz norte-americana. Dipangkorn Rasmijoti, pr	ana. 1999 Mohamed Nbalie Kamara, futebolista serra-leonês.
2007 Sofia de Bourbon e Ortiz, infanta espanhola. Mirra Andreeva, tenista russa. 1380 — Catarina de Siena, santa católica italiana (n. 1347). 1476 — Maria de Harcourt, condessa de Aumale (n. 1398). 1771 — Louis Petit de Bachaumont, escritor francês (n. 1690). 1854 — Henry Paget, 1.º M	Marquês de Anglesey (n. 1768). 1882 — John Nelson Darby,
pregador anglo-irlandês (n. 1800). 1929 — Violet Herbert, Condessa de Powis (n. 1865). 1944 — Bernardino Machado, político português (n. 1851). 1951 — Ludwig Wittgenstein, filósofo austríaco (n. 1889). 1967 — Anthony Mann, cineasta estadunidense (n. 1906). 1980 — Alfred Hitchcock, tenor estadunidense (n. 1926). 1991 — Gonzaguinha, cantor e compositor brasileiro (n. 1946). 2002 — Fernando Pessa, jornalista português (n. 1902). 2005 — Mariana Levy, atriz e cantora mexicana (n. 1966). 2006 — John Kennet	th Galbraith, economista estadunidense (n. 1908). 2007
Octávio Frias de Oliveira, jornalista, editor e empresário brasileiro (n. 1912). Serafim Gonzalez, ator e escultor brasileiro (n. 1934). Ivica Račan, político croata (n. 1944). Joseph Nérette, político haitiano (n. 1924). 2008 — Albert Hofmann, cientista suíço (n. 1906). 2014 — Bob Hoskins, ator trovador de música nativista brasileiro (n. 1946). Iveta Bartošová, cantora e atriz tcheca (n. 1966). 2019 — Josef Šural, futebolista tcheco (n. 1967). Dia Internacional da Dança Dia em Memória de todas as Vítimas de Armas Químicas Dia Verde, fer	riado que dá início a Golden Week - Japão Dia Mundial dos
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Vieirópolis e Zabelê, na Paraíba Aniversário dos municípios de Buriti dos Montes, Coivaras e Lagoa Alegre, no Piauí Aniversário do município de São Vendelino e São Sepé, no Rio Grande do Sul Catarina de Siena Hugo de Cluny Sosípatro de Icônio Torpes de Pisa No calendário romano era c	o 3.º dia (III) antes das calendas de maio. No calendário
litúrgico tem a letra dominical G para o dia da semana. No calendário gregoriano a epacta do dia é *. ↑ Snow, Dan (2009). Death Or Victory: The Battle for Quebec and the Birth of Empire. Harper Collins UK. pp. 416-17. ISBN 9780007286201 ↑ «Captain Cook's landing contested by Aborig Consultado em 29 de abril de 2023 ↑ Clowes, W. Laird (William Laird); Markham, Clements R. (Clements Robert); Mahan, A. T. (Alfred Thayer); Wilson, Herbert Wrigley; Roosevelt, Theodore; Laughton, L. G. Carr (Leonard George Carr) (1897). The royal navy: a history from the earliest time of the consultation of the consultati	mes to the present. University of California Libraries. [S.l.]:
London: S. Low, Marston and company, limited ↑ Robertson, Peter; Cozens, Glen; Orchiston, Wayne; Slee, Bruce; Wendt, Harry (2010). «Early Australian Optical and Radio Observations of Centaurus A». Publications of the Astronomical Society of Australia (em inglês) (4): 402-430. ISSN 1 de 2023 ↑ Hearn, Chester G. (1997). When the Devil Came Down to Dixie: Ben Butler in New Orleans. Baton Rouge: Louisiana State University. pp. 243-245. ISBN 9780807121801 ↑ Jibson, R.W.; Prentice C.S.; Borissoff B.A.; Rogozhin E.A.; Langer C.J. (1994). «Some Observations of Lands	slides Triggered by the 29 April 1991 Racha Earthquake,
Republic of Georgia» (PDF). Bulletin of the Seismological Society of America. 84 (4). Consultado em 10 de agosto de 2010. Cópia arquivada (PDF) em 31 de maio de 2010 O Commons possui uma categoria com imagens e outros ficheiros sobre 29 de abril Obtida de " 3 Não insira textos prot verificabilidade das informações: cite sempre fontes confiáveis. Escreva em português formal sem alterar as versões do idioma. Saiba o que não fazer e evite erros comuns ao editar. Veja também as nossas políticas e recomendações e a página de ajuda. Não se encontra autentificado. Embora	tegidos por direitos de autor, pois serão removidos. Garanta a
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