



Crossword

A **crossword** (or **crossword puzzle**) is a word game consisting of a grid of black and white squares, into which solvers enter words or phrases ("entries") crossing each other horizontally ("across") and vertically ("down") according to a set of clues. Each white square is typically filled with one letter, while the black squares are used to separate entries. The first white square in each entry is typically numbered to correspond to its clue.

Crosswords commonly appear in newspapers and magazines. The earliest crosswords that resemble their modern form were popularized by the *New York World* in the 1910s. Many variants of crosswords are popular around the world, including cryptic crosswords and many language-specific variants.

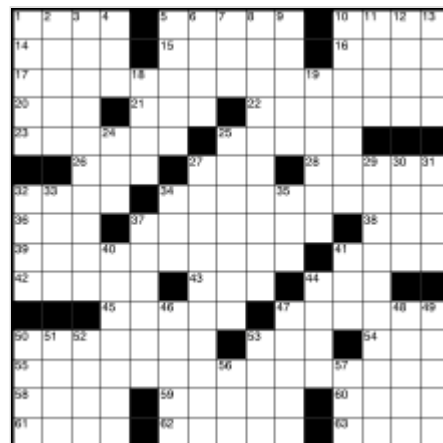
Crossword construction in modern times usually involves the use of software. Constructors choose a theme (except for themeless puzzles), place the theme answers in a grid which is usually symmetric, fill in the rest of the grid, and then write clues.

American-style crosswords

Crossword grids such as those appearing in most North American newspapers and magazines consist mainly of solid regions of uninterrupted white squares, separated more sparsely by shaded squares. Every letter is "checked" (i.e. is part of both an "across" word and a "down" word) and usually each answer must contain at least three letters. In such puzzles shaded squares are typically limited to about one-sixth of the total. Crossword grids elsewhere, such as in Britain, South Africa, India and Australia, have a lattice-like structure, with a higher percentage of shaded squares (around 25%), leaving about half the letters in an answer unchecked. For example, if the top row has an answer running all the way across, there will often be no across answers in the second row.

Another tradition in puzzle design (in North America, India, and Britain particularly) is that the grid should have 180-degree rotational symmetry, so that its pattern appears the same if the paper is turned upside down. Most puzzle designs also require that all white cells be orthogonally contiguous (that is, connected in one mass through shared sides, to form a single polyomino).

Substantial variants from the usual forms exist. Two of the common ones are barred crosswords, which use bold lines between squares (instead of shaded squares) to separate answers, and circular designs, with answers entered either radially or in concentric circles. "Free form" crosswords ("criss-cross" puzzles),



An American-style crossword grid layout



A person works on a Russian-language crossword puzzle in the New York City Subway, 2008.

which have simple, asymmetric designs, are often seen on school worksheets, children's menus, and other entertainment for children. Grids forming shapes other than squares are also occasionally used.

Puzzles are often one of several standard sizes. For example, many weekday newspaper puzzles (such as the American New York Times crossword puzzle) are 15×15 squares, while weekend puzzles may be 21×21, 23×23, or 25×25. The New York Times puzzles also set a common pattern for American crosswords by increasing in difficulty throughout the week: their Monday puzzles are the easiest and the puzzles get harder each day until Saturday. Their larger Sunday puzzle is about the same level of difficulty as a weekday-size Thursday puzzle.^[1] This has led U.S. solvers to use the day of the week as a shorthand when describing how hard a puzzle is: e.g. an easy puzzle may be referred to as a "Monday" or a "Tuesday", a medium-difficulty puzzle as a "Wednesday", and a truly difficult puzzle as a "Saturday".

Typically clues appear outside the grid, divided into an across list and a down list; the first cell of each entry contains a number referenced by the clue lists. For example, the answer to a clue labeled "17 Down" is entered with the first letter in the cell numbered "17", proceeding down from there. Numbers are almost never repeated; numbered cells are numbered consecutively, usually from left to right across each row, starting with the top row and proceeding downward. Some Japanese crosswords are numbered from top to bottom down each column, starting with the leftmost column and proceeding right.

Clues: conventions and types

American-style crossword clues, called *straight* or *quick clues* by those more familiar with cryptic puzzles, are often simple definitions of the answers. Often, a straight clue is not in itself sufficient to distinguish between several possible answers, either because multiple synonymous answers may fit or because the clue itself is a homonym (e.g., "Lead" as in to be ahead in a contest or "Lead" as in the element), so the solver must make use of *checks* to establish the correct answer with certainty. For example, the answer to the clue "PC key" for a three-letter answer could be *ESC*, *ALT*, *TAB*, *DEL*, or *INS*, so until a *check* is filled in, giving at least one of the letters, the correct answer cannot be determined.

In most American-style crosswords,^[2] the majority of the clues in the puzzle are straight clues,^[3] with the remainder being one of the other types described below.

Crossword clues are generally consistent with the solutions. For instance, clues and their solutions should always agree in tense, number, and degree.^[4] If a clue is in the past tense, so is the answer: thus "Traveled on horseback" would be a valid clue for the solution *RODE*, but not for *RIDE*. Similarly, "Family members" would be a valid clue for *AUNTS* but not *UNCLE*, while "More joyful" could clue *HAPPIER* but not *HAPPIEST*.

Capitalization

Capitalization of answer letters is conventionally ignored; crossword puzzles are typically filled in, and their answer sheets published, in all caps. This ensures a proper name can have its initial capital letter checked with a non-capitalizable letter in the intersecting clue.

Some clue examples:

- Fill-in-the-blank clues are often the easiest in a puzzle and a good place to start solving, e.g., "_____ Boleyn" = *ANNE*.

- A question mark at the end of clue usually signals that the clue/answer combination involves some sort of pun or wordplay, e.g., "Grateful?" = *ASHES*, since a grate might be full of them.
- Most widely distributed American crosswords today (e.g., *The New York Times*, *The Washington Post*, *The Boston Globe*, *USA Today*, etc.) also contain colloquial answers, i.e., entries in the puzzle grid that try to replicate everyday colloquial language. In such a puzzle one might see phrases such as *WHAT'S UP*, *AS IF*, or *WHADDYA WANT*.

Abbreviations

The constraints of the American-style grid (in which every letter is checked) often require a fair number of answers not to be dictionary words. As a result, the following ways to clue abbreviations and other non-words, although they can be found in "straight" British crosswords, are much more common in American ones:

- Abbreviations, the use of a foreign language, variant spellings, or other unusual word tricks are indicated in the clue. A crossword creator might choose to clue the answer *SEN* (as in the abbreviation for "senator") as "Washington bigwig: Abbr." or "Member of Cong.", with the abbreviation in the clue indicating that the answer is to be similarly abbreviated.^[5] The use of "Var." indicates the answer is a variant spelling (e.g., *EMEER* instead of *EMIR*), while the use of foreign language or a foreign place name within the clue indicates that the answer is also in a foreign language. For example, *ETE* (*été*, French for "summer") might be clued as "Summer, in the *Sorbonne*". *ROMA* could be clued as "Italia's capital", whereas the clue "Italy's capital" would indicate the English spelling *Rome*.
- The eight possible abbreviations for a position on a compass, e.g., *NNW* (north-northwest) or *ESE* (east-southeast), occur with some frequency. They can be clued as simply "Compass point", where the desired answer is determined by a combination of logic—since the third letter can be only E or W, and the second letter can be only N or S—and a process of elimination using checks. Alternatively, compass point answers are more frequently clued as "XXX to YYY direction", where XXX and YYY are two place names. For example, *SSW* might be clued as "New York to Washington DC dir". Similarly, a clue such as "Right on the map" means *EAST*. A clue could also consist of objects that point a direction, e.g., "vane dir." or "windsock dir.".
- Roman numerals, and arithmetic involving them, frequently appear as well; the clue "IV times III" (4×3) would yield *XII* (12).
- In addition, partial answers are allowed in American-style crosswords, where the answer represents part of a longer phrase. For example, the clue "Mind your _____ Qs" gives the answer *PSAND* (Ps and).
- Non-dictionary phrases are also allowed in answers. Thus, the clue "Mocked" could result in the grid entry *LAUGHED AT*.

Themes

Many American crossword puzzles feature a "theme" consisting of a number of long entries (generally three to five in a standard 15×15-square "weekday-size" puzzle) that share some relationship, type of pun, or other element in common. As an example, the *New York Times* crossword of April 26, 2005 by Sarah Keller, edited by Will Shortz, featured five themed entries ending in the different parts of a tree: *SQUAREROOT*, *TABLELEAF*, *WARDROBETRUNK*, *BRAINSTEM*, and *BANKBRANCH*.

The above is an example of a category theme, where the theme elements are all members of the same set. Other types of themes include:

- Quote themes, featuring a famous quote broken up into parts to fit in the grid (and usually clued as "Quote, part 1", "Quote, part 2", etc.)
- Rebus themes, where multiple letters or even symbols occupy a single square in the puzzle (e.g., *BERMUDAΔ*)
- Addition themes, where theme entries are created by adding a letter, letters, or word(s) to an existing word or phrase. For example, "Crucial pool shot?" = *CRITICAL MASSE* (formed by taking the phrase "critical mass" and adding an "e" on the end. All the theme entries in a given puzzle must be formed by the same process (so another entry might be "Greco-Roman buddy?" = *WRESTLING MATE*—"wrestling mat" with an "e" added on). An example of a multiple-letter addition (and one that does not occur at the end of the entry) might be "Crazy about kitchen storage?" = *CABINET FEVER* (derived from "cabin fever").^[6]
- Subtraction themes, the reverse of the above, where letters are removed to make a new word or phrase.^[6]
- Compound themes, where the starts or ends of the theme entries can all precede or follow another word, which is given elsewhere in the puzzle. For example, a puzzle with theme entries that begin with *PAPER*, *BALL*, and *WATER* and elsewhere in the puzzle, the word *BOY* clued as "Word that can follow the start of [theme entries]".^[6]
- Anniversary or tribute themes, commemorating a specific person, place, or event. For example, on October 7, 2011 *The New York Times* crossword commemorated the life of Apple CEO Steve Jobs who had died on October 5. Theme entries related to Jobs' life included *MACINTOSH*, *PIXAR*, *THINK DIFFERENT*, *CREATIVE GENIUS*, *STEVE JOBS*, and *APPLE*.^{[6][7]}
- Synonym themes, where the theme entries all contain synonyms, e.g., a *Los Angeles Times* puzzle featuring a set of theme entries that contain the words *RAVEN*, *JET*, *EBONY*, and *SABLE*, all synonyms for "black".^[6]
- Numerous other types have been identified, including spoonerisms, poems, shifted letters, rhyming phrases, puns, homophones, and combinations of two or more of other types of themes.^[6]

The themed crossword puzzle was invented in 1958 by Harold T. Bers, an advertising executive and frequent contributor to *The New York Times* crossword.^{[8][9][10][11]}

The Simon & Schuster Crossword Puzzle Series has published many unusual themed crosswords. "Rosetta Stone", by Sam Bellotto Jr., incorporates a Caesar cipher cryptogram as the theme; the key to breaking the cipher is the answer to 1 across. Another unusual theme requires the solver to use the answer to a clue as another clue. The answer to *that* clue is the real solution.

Indirect clues

Many puzzles feature clues involving wordplay which are to be taken metaphorically or in some sense other than their literal meaning, requiring some form of lateral thinking. Depending on the puzzle creator or the editor, this might be represented either with a question mark at the end of the clue or with a modifier such as "maybe" or "perhaps". In more difficult puzzles, the indicator may be omitted, increasing ambiguity between a literal meaning and a wordplay meaning. Examples:

- "Half a dance" could clue *CAN* (half of *CANCAN*) or *CHA* (half of *CHACHA*).
- If taken literally, "Start of spring" could clue *MAR* (for March), but it could also clue *ESS*, the spelled-out form of the starting letter S.
- "Nice summer?" clues *ETE*, summer in Nice, France (*été* being French for "summer"), rather than a nice (pleasant) summer. This clue also takes advantage of the fact that in American-style crosswords, the initial letter of a clue is always capitalized, whether or not it is a proper

noun. In this clue, the initial capitalization further obscures whether the clue is referring to "nice" as in "pleasant" or "Nice" as in the French city.

- "Pay addition", taken literally, clues *BONUS*. When taken as an indirect clue, however, it could also clue *OLA* (the *addition* of *-ola* to *pay-* results in *PAYOLA*).

Other clue variations

Any type of puzzle may contain *cross-references*, where the answer to one clue forms part of another clue, in which it is referred to by number and direction. E.g., a puzzle might have 1-across clued as "Central character in The Lord of the Rings" = *FRODO*, with 17-down clued as "Precious object for 1-Across" = *RING*.

When an answer is composed of multiple or hyphenated words, some crosswords (especially in Britain) indicate the structure of the answer. For example, "(3,5)" after a clue indicates that the answer is composed of a three-letter word followed by a five-letter word. Most American-style crosswords do not provide this information.

Metapuzzles

Some crossword designers have started including a metapuzzle, or "meta" for short, a second puzzle within the completed puzzle.^[12] After the player has correctly solved the crossword puzzle in the usual fashion, the solution forms the basis of a second puzzle. The designer usually includes a hint to the metapuzzle. For instance, the puzzle *Eight Isn't Enough* by Matt Gaffney gives the clue "This week's contest answer is a three-word phrase whose second word is 'or'."^[13] The crossword solution includes the entries "BROUGHT TO NAUGHT", "MIGHT MAKES RIGHT", "CAUGHT A STRAIGHT", and "HEIGHT AND WEIGHT", which are all three-word phrases with two words ending in -ght. The solution to the meta is a similar phrase in which the middle word is "or": "FIGHT OR FLIGHT".

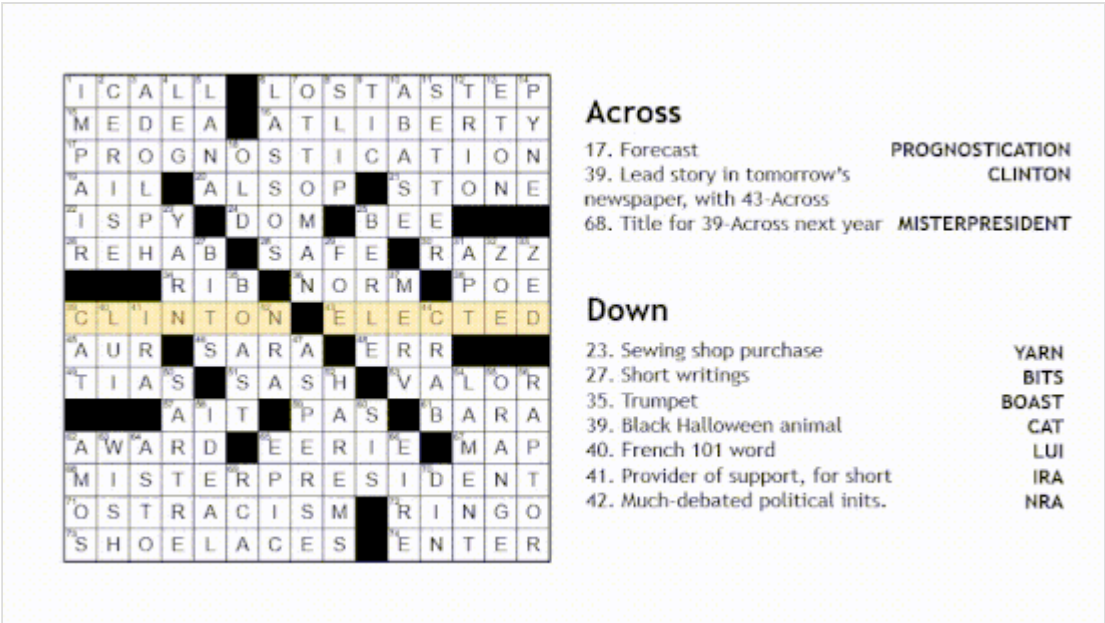
Since September 2015, the Wall Street Journal Friday crossword has featured a crossword contest metapuzzle, with the prize of a WSJ mug going to a reader randomly chosen from among those submitting the correct answer.^{[14][15]}

Schrödinger or quantum puzzles

Some puzzle grids contain more than one correct answer for the same set of clues. These are called Schrödinger or quantum puzzles, alluding to the Schrödinger's Cat thought experiment in quantum physics.^[16] Schrödinger puzzles have frequently been published in venues including *Fireball Crosswords* and *The American Values Club Crosswords*, and at least ten have appeared in *The New York Times* since the late 1980s.^[17]

The daily *New York Times* puzzle for November 5, 1996, by Jeremiah Farrell, had a clue for 39 across that read "Lead story in tomorrow's newspaper, with 43 Across (!)."^[18] The answer for 43 across was ELECTED; depending on the outcome of that day's Presidential Election, the answer for 39 across would have been correct with either CLINTON or BOBDOLE, as would each of the corresponding down answers.^[19] On September 1, 2016, the daily *New York Times* puzzle by Ben Tausig had four squares

which led to correct answers reading both across and down if solvers entered either "M" or "F".^[20] The puzzle's theme,

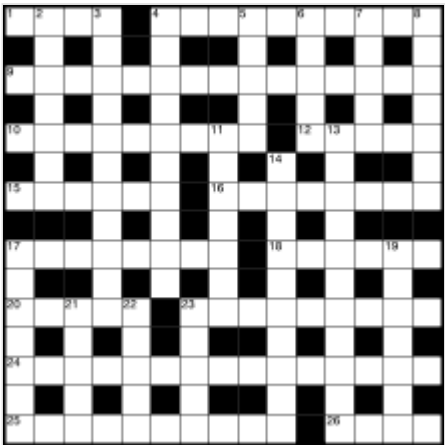


Clinton/Bob Dole puzzle from 1996

GENDERFLUID, was revealed at 37 across in the center of the puzzle: "Having a variable identity, as suggested by four squares in this puzzle."^[21]

Cryptic crosswords

In cryptic crosswords, the clues are puzzles in themselves. A typical clue contains both a definition at the beginning or end of the clue and wordplay, which provides a way to manufacture the word indicated by the definition, and which may not parse logically. Cryptics usually give the length of their answers in parentheses after the clue, which is especially useful with multi-word answers. Certain signs indicate different forms of wordplay. Solving cryptics is harder to learn than standard crosswords, as learning to interpret the different types of cryptic clues can take some practice. In Great Britain and throughout much of the Commonwealth, cryptics of varying degrees of difficulty are featured in many newspapers.^{[22][23][24]}



A lattice-style grid common for cryptic crosswords

The first crosswords with strictly cryptic clues appeared in the 1920s, pioneered by Edward Powys Mathers. He established the principle of cryptic crossword clues.^[25] Cryptic crossword clues consist typically of a definition and some type of word play. Cryptic crossword clues need to be viewed two ways. One is a surface reading and one a hidden meaning.^[26] The surface reading is the basic reading of the clue to look for key words and how those words are constructed in the clue. The second way is the hidden meaning. This can be a double definition, an anagram, homophone, or words backwards. There are eight main types of clues in cryptic crosswords.^[26]

Types of cryptic clues

There are several types of wordplay used in cryptics. One is straightforward definition substitution using parts of a word. For example, in one puzzle by Mel Taub, the answer *IMPORTANT* is given the clue "To bring worker into the country may prove significant". The explanation is that to *import* means "to bring into the country", the "worker" is a worker *ant*, and "significant" means *important*. Here, "significant" is the straight definition (appearing here at the end of the clue), "to bring worker into the country" is the wordplay definition, and "may prove" serves to link the two. Note that in a cryptic clue, there is almost always only one answer that fits both the definition and the wordplay, so that when one sees the answer, one knows that it is the right answer—although it can sometimes be a challenge to figure out *why* it is the right answer. A good cryptic clue should provide a fair and exact definition of the answer, while at the same time being deliberately misleading.

Another type of wordplay used in cryptics is the use of homophones. For example, the clue "A few, we hear, add up (3)" is the clue for *SUM*. The straight definition is "add up", meaning "totalize". The solver must guess that "we hear" indicates a homophone, and so a homophone of a synonym of "A few" ("some") is the answer. Other words relating to sound or hearing can be used to signal the presence of a homophone clue (e.g., "aloud", "audibly", "in conversation", etc.).

The double meaning is commonly used as another form of wordplay. For example, "Cat's tongue (7)" is solved by *PERSIAN*, since this is a type of cat, as well as a tongue, or language. This is the only type of cryptic clue without wordplay—both parts of the clue are a straight definition.

Cryptics often include anagrams, as well. For example, in "Slipped a disc – it's cruel (8)" an anagram is indicated by "slipped", with the definition to aim for being "cruel". Ignoring all punctuation, "a disc – it's" produces "SADISTIC". Colin Dexter advised that "Usually the indicator will be an adjective (drunk, fancy, unusual, and so on); an adverb (badly, excitedly, unexpectedly); a past participle (altered, broken, jumbled) or indeed any phrase giving a similar meaning."^[27]

Embedded words are another common trick in cryptics. The clue "Bigotry aside, I'd take him (9)" is solved by *APARTHEID*. The straight definition is "bigotry", and the wordplay explains itself, indicated by the word "take" (since one word "takes" another): "aside" means APART and I'd is simply ID, so APART and ID "take" HE (which is, in cryptic crossword usage, a perfectly good synonym for "him"). The answer could be elucidated as APART(HE)ID.

Another common clue type is the "hidden clue" or "container", where the answer is hidden in the text of the clue itself. For example, "Made a dug-out, buried, and passed away (4)" is solved by *DEAD*. The answer is written in the clue: "maDE A Dug-out". "Buried" indicates that the answer is embedded within the clue.

There are numerous other forms of wordplay found in cryptic clues. Backwards words can be indicated by words like "climbing", "retreating", or "ascending" (depending on whether it is an across clue or a down clue) or by directional indicators such as "going North" (meaning upwards) or "West" (right-to-left); letters can be replaced or removed with indicators such as "nothing rather than excellence" (meaning replace E in a word with O); the letter I can be indicated by "me" or "one;" the letter O can be indicated by "nought", "nothing", "zero", or "a ring" (since it visually resembles one); the letter X might be clued as "a cross", or "ten" (as in the Roman numeral), or "an illiterate's signature", or "sounds like your old flame" (homophone for "ex"). "Senselessness" is solved by "e", because "e" is what remains after removing (less) "ness" from "sense".

With the different types of wordplay and definition possibilities, the composer of a cryptic puzzle is presented with many different possible ways to clue a given answer. Most desirable are clues that are clean but deceptive, with a smooth *surface reading* (that is, the resulting clue looks as natural a phrase as possible). The Usenet newsgroup *rec.puzzles.crosswords* has a number of clueing competitions where contestants all submit clues for the same word and a judge picks the best one.

In principle, each cryptic clue is usually sufficient to define its answer uniquely, so it should be possible to answer each clue without use of the grid. In practice, the use of checks is an important aid to the solver.

Other variants

These are common crossword variants that vary more from a regular crossword than just an unusual grid shape or unusual clues; these crossword variants may be based on different solving principles and require a different solving skill set.

Cipher crosswords

Cipher crosswords were invented in Germany in the 19th century. Published under various trade names (including Code Breakers, Code Crackers, and Kaidoku), and not to be confused with cryptic crosswords (ciphertext puzzles are commonly known as cryptograms), a cipher crossword replaces the clues for each entry with clues for each white cell of the grid—an integer from 1 to 26 inclusive is printed in the corner of each. The objective, as any other crossword, is to determine the proper letter for each cell; in a cipher crossword, the 26 numbers serve as a cipher for those letters: cells that share matching numbers are filled with matching letters, and no two numbers stand for the same letter. All resultant entries must be valid words. Usually, at least one number's letter is given at the outset. English-language cipher crosswords are nearly always pangrammatic (all letters of the alphabet appear in the solution). As these puzzles are closer to codes than quizzes, they require a different skillset; many basic cryptographic techniques, such as determining likely vowels, are key to solving these. Given their pangrammaticity, a frequent start point is locating where 'Q' and 'U' must appear.

Diagramless crosswords

In a diagramless crossword, often called a diagramless for short or, in the UK, a skeleton crossword or *carte blanche*, the grid offers overall dimensions, but the locations of most of the clue numbers and shaded squares are unspecified. A solver must deduce not only the answers to individual clues, but how to fit together partially built-up clumps of answers into larger clumps with properly set shaded squares. Some of these puzzles follow the traditional symmetry rule, others have left-right mirror symmetry, and others have greater levels of symmetry or outlines suggesting other shapes. If the symmetry of the grid is given, the solver can use it to his/her advantage.

Fill-in crosswords

A fill-in crossword (also known as *crusadex* or *cruzadex*) features a grid and the full list of words to be entered in that grid, but does not give explicit clues for where each word goes. The challenge is figuring out how to integrate the list of words together within the grid so that all intersections of words are valid. Fill-in crosswords may often have longer word length than regular crosswords to make the crossword

easier to solve, and symmetry is often disregarded. Fitting together several long words is easier than fitting together several short words because there are fewer possibilities for how the long words intersect together. These types of crosswords are also used to demonstrate artificial intelligence abilities, such as finding solutions to the puzzle based on a set of determined constraints.^[28]

Cross-figures

A cross-figure or crossnumber is the numerical analogy of a crossword, in which the solutions to the clues are numbers instead of words. Clues are usually arithmetical expressions, but can also be general knowledge clues to which the answer is a number or year. There are also numerical fill-in crosswords.

Acrostic puzzles

An acrostic is a type of word puzzle, in eponymous acrostic form, that typically consists of two parts. The first is a set of lettered clues, each of which has numbered blanks representing the letters of the answer. The second part is a long series of numbered blanks and spaces, representing a quotation or other text, into which the answers for the clues fit. In most forms of the puzzle, the first letters of each correct clue answer, read in order from clue A on down the list, will spell out the author of the quote and the title of the work it is taken from; this can be used as an additional solving aid.

Arrowword

The arrowword is a variant of a crossword that does not have as many black squares as a true crossword, but has arrows inside the grid, with clues preceding the arrows. It has been called the most popular word puzzle in many European countries, and is often called the Scandinavian crossword, as it is believed to have originated in Sweden.^[29]

History

The phrase "cross word puzzle" was first written in 1862 by *Our Young Folks* in the United States. Crossword-like puzzles, for example Double Diamond Puzzles, appeared in the magazine *St. Nicholas*, published since 1873.^[30] Another crossword puzzle appeared on September 14, 1890, in the Italian magazine *Il Secolo Illustrato della Domenica*. It was designed by Giuseppe Airoldi and titled "*Per passare il tempo*" ("To pass the time"). Airoldi's puzzle was a four-by-four grid with no shaded squares; it included horizontal and vertical clues.^[31]

Crosswords in England during the 19th century were of an elementary kind, apparently derived from the word square, a group of words arranged so the letters read alike vertically and horizontally, and printed in children's puzzle books and various periodicals.

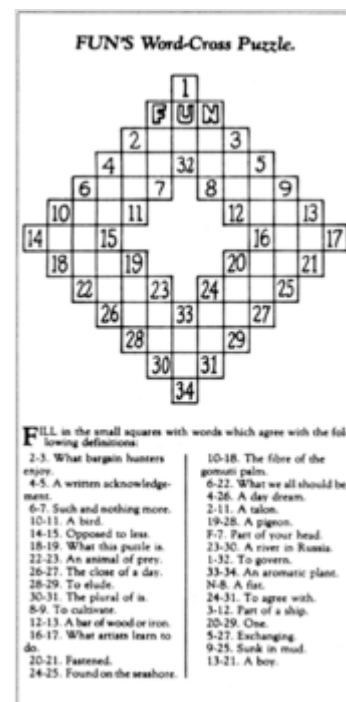
On December 21, 1913, Arthur Wynne, a journalist born in Liverpool, England, published a "word-cross" puzzle in the *New York World* that embodied most of the features of the modern genre. This puzzle is frequently cited as the first crossword puzzle, and Wynne as the inventor. An illustrator later reversed the "word-cross" name to "cross-word".^{[32][33][34]}

Crossword puzzles became a regular weekly feature in the *New York World*, and spread to other newspapers; the *Pittsburgh Press*, for example, was publishing them at least as early as 1916^[35] and *The Boston Globe* by 1917.^[36]

By the 1920s, the crossword phenomenon was starting to attract notice. In October 1922, newspapers published a comic strip by Clare Briggs entitled "Movie of a Man Doing the Cross-Word Puzzle", with an enthusiast muttering "87 across 'Northern Sea Bird'!?!?!?!? Hm-m-m starts with an 'M', second letter is 'U' ... I'll look up all the words starting with an 'M-U ...' mus-musi-mur-murd—Hot Dog! Here 'tis! Murre!"^[37] In 1923 a humorous squib in *The Boston Globe* has a wife ordering her husband to run out and "rescue the papers ... the part I want is blowing down the street." "What is it you're so keen about?" "The Cross-Word Puzzle. Hurry, please, that's a good boy."^[38] In *The New Yorker's* inaugural issue, from 1925, the "Jottings About Town" section observed, "Judging from the number of solvers in the subway and 'L' trains, the crossword puzzle bids fair to become a fad with New Yorkers."^[39] Also in 1925, the *New York Public Library* reported that "The latest craze to strike libraries is the crossword puzzle", and complained that when "the puzzle 'fans' swarm to the dictionaries and encyclopedias so as to drive away readers and students who need these books in their daily work, can there be any doubt of the Library's duty to protect its legitimate readers?"^[40]

The first book of crossword puzzles was published by Simon & Schuster in 1924, after a suggestion from co-founder Richard Simon's aunt. The publisher was initially skeptical that the book would succeed, and only printed a small run at first. The book was promoted with an included pencil, and "This odd-looking book with a pencil attached to it"^[41] was an instant hit, leading crossword puzzles to become a craze of 1924. To help promote its books, Simon & Schuster also founded the Amateur Cross Word Puzzle League of America, which began the process of developing standards for puzzle design.^{[34][42]}

Not all of the attention drawn to the crossword puzzle fad was positive: A 1924 editorial in *The New York Times* complained of the "sinful waste in the utterly futile finding of words the letters of which will fit into a prearranged pattern, more or less complex. This is not a game at all, and it hardly can be called a sport ... [solvers] get nothing out of it except a primitive form of mental exercise, and success or failure in any given attempt is equally irrelevant to mental development."^[43] A clergyman called the working of crossword puzzles "the mark of a childish mentality" and said, "There is no use for persons to pretend that working one of the puzzles carries any intellectual value with it."^[44] However, another wrote a complete *Bible Cross-Word Puzzle Book*. Also in 1925, *Time* magazine noted that nine Manhattan dailies and fourteen other big newspapers were carrying crosswords, and quoted opposing views as to whether "This crossword craze will positively end by June!" or "The crossword puzzle is here to stay!"^[45] In 1925, *The New York Times* noted, with approval, a



Recreation of Arthur Wynne's original crossword puzzle from December 21, 1913



A 1925 *Punch* cartoon about "The Cross-Word Mania". A man phones his doctor in the middle of the night, asking for "the name of a bodily disorder of seven letters, of which the second letter must be 'N'".

scathing critique of crosswords by *The New Republic*; but concluded that "Fortunately, the question of whether the puzzles are beneficial or harmful is in no urgent need of an answer. The craze evidently is dying out fast and in a few months it will be forgotten."^[46] and in 1929 declared, "The cross-word puzzle, it seems, has gone the way of all fads."^[47] In 1930, a correspondent noted that "Together with *The Times* of London, yours is the only journal of prominence that has never succumbed to the lure of the cross-word puzzle" and said that "The craze—the fad—stage has passed, but there are still people numbering it to the millions who look for their daily cross-word puzzle as regularly as for the weather predictions."^[48]

The term "crossword" first appeared in the *Oxford English Dictionary* in 1933.^[49]

The New York Times finally began to publish a crossword puzzle on 15 February 1942, spurred on by the idea that the puzzle could be a welcome distraction from the harsh news of *World War II*. *The New York Times*'s first puzzle editor was *Margaret Petherbridge Farrar*, who was editor from 1942 to 1969.^[34] She was succeeded by *Will Weng*, who was succeeded by *Eugene T. Maleska*. Since 1993, they have been edited by *Will Shortz*, the *Times*' fourth crossword editor.

Simon & Schuster continues to publish the *Crossword Puzzle Book Series* books that it began in 1924, currently under the editorship of John M. Samson. The original series ended in 2007 after 258 volumes. Since 2008, these books are now in the Mega series, appearing three times per year and each featuring 300 puzzles.

The *cryptic crossword* variation originated in Britain in the mid-1920s. *Edward Powys Mathers* set the first crossword to use entirely cryptic clues, originally just for the enjoyment of his friends, one of whom, without permission, submitted it to the Saturday *Westminster Gazette*. The editors approached Mathers for more puzzles, and published eleven more of these novel cryptic crosswords. Upon the demise of the Saturday *Westminster*, Mathers began setting puzzles for *The Observer*, beginning a series of 670 cryptic crosswords, which ended only with Mathers' death in 1939.^[50] Mathers set his puzzles under the pen name of *Torquemada*, after the first *Grand Inquisitor* of the *Spanish Inquisition*. His successors as *The Observer* cryptic crossword setter followed his example. *Derrick Somerset Macnutt*, who took over at Mather's death, chose the pen name "Ximenes," an Anglicization of the surname of *Francisco Jiménez de Cisneros*, a *Grand Inquisitor* in Castile. The current *Observer* cryptic compiler, *Jonathan Crowther* sets under the name "*Azed*," a reversal of *Deva*, another *Grand Inquisitor*. Cryptic crosswords are popular in Britain, some British Commonwealth nations, and in a few other countries. Many British newspapers publish both standard and cryptic crosswords.

The cryptic crossword was imported to the US in 1968 by composer and lyricist *Stephen Sondheim* in the *New York* magazine, but never became widespread. From 1977 to 2006, *The Atlantic* regularly featured a cryptic crossword "Puzzler" by the husband and wife team of *Emily Cox and Henry Rathvon*. From 2006 to 2009, *The Atlantic* puzzler appeared only online. In 2010, Cox and Rathvon's efforts began to appear monthly in *The Wall Street Journal*.^[51] The pair retired at the end of 2023, but the WSJ continues to offer a cryptic crossword each month.

In the *United Kingdom*, the *Sunday Express* was the first newspaper to publish a crossword on November 2, 1924, a Wynne puzzle adapted for the UK. The first crossword in Britain, according to Tony Augarde in his *Oxford Guide to Word Games* (1984), was in *Pearson's Magazine* for February 1922.

The 2006 documentary *Wordplay*, about enthusiasts of *The New York Times*'s puzzle, increased public interest in crosswords. It highlighted attendees of Will Shortz's *American Crossword Puzzle Tournament* and other notable crossword enthusiasts, including former US president *Bill Clinton* and comedian *Jon Stewart*.^[34] Other crossword tournaments in the United States include *Lollapuzzoola* in New York City and *Boswords* in Boston.^[52]



Finalists competing in a crossword competition in New York City in 2019

World War II

In 1944, Allied security officers were disturbed by the appearance, in a series of crosswords in *The Daily Telegraph*, of words that were secret code names for military operations planned as part of *Operation Overlord*.

Some cryptologists for *Bletchley Park* were selected after doing well in a crossword-solving competition.^[53]

Records

According to *Guinness World Records*, May 15, 2007, the most prolific crossword compiler is *Roger Squires* of *Ironbridge*, *Shropshire*, UK. On May 14, 2007, he published his 66,666th crossword,^[54] equivalent to 2 million clues. He is one of only four setters to have provided cryptic puzzles to *The Times*, *The Daily Telegraph*, *The Guardian*, the *Financial Times* and *The Independent*. He also holds the record for the longest word ever used in a published crossword—the 58-letter Welsh town *Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch* clued as an anagram.

Enthusiasts have compiled a number of record-setting achievements in *New York Times* and other venues.^[55]

- The lowest word count in a published weekday-size 15x15 puzzle is the June 29, 2013 *The New York Times* crossword by Joe Krozel, with just 50 words.^[56]
- The fewest shaded squares in a 15x15 American crossword is 17 (leaving 208 white spaces), set by the July 27, 2012 *Times* crossword by Joe Krozel.^[57]
- The record for most crosswords published in *The New York Times* is held by *Manny Nosowsky*, who has had 241 puzzles in that outlet.
- A N Prahlada Rao, crossword constructor from India, has recorded in the *Limca Book of Records* in 2016 for constructing highest number of crosswords in Indian regional languages. In 2019 his name has mentioned in the *Kalam Book of World Records*.^{[58][59]}

Female crossword constructors

Women editors such as *Margaret Farrar* were influential in the first few decades of puzzle-making, and women constructors such as *Bernice Gordon* and *Elizabeth Gorski* have each contributed hundreds of puzzles to *The New York Times*.^[60] However, in recent years the number of women constructors has declined. During the years that *Will Weng* and *Eugene Maleska* edited the *New York Times* crossword (1969–1993), women constructors accounted for 35% of puzzles,^{[61][62]} while during the editorship of *Will Shortz* (1993–present), this percentage has gone down, with women constructors (including

collaborations) accounting for only 15% of puzzles in both 2014 and 2015, 17% of puzzles published in 2016, 13%—the lowest in the "Shortz Era"—in 2017, and 16% in 2018.^{[63][64]} Several reasons have been given for the decline in women constructors. One explanation is that the gender imbalance in crossword construction is similar to that in related fields, such as journalism, and that more freelance male constructors than females submit puzzles on spec to *The New York Times* and other outlets.^[65] Another explanation is that computer-assisted construction and the increased influence of computational approaches in generating word lists may be making crossword construction more like STEM fields in which women are underrepresented for a number of factors.^[61] However, it has also been argued that this explanation risks propagating myths about gender and technology.^[66] Some have argued that the relative absence of women constructors and editors has had an influence on the content of the puzzles themselves, and that clues and entries can be insensitive regarding language related to gender and race.^{[67][68]} Margaret Irvine suggested that lack of confidence was a barrier.^[69] Several approaches have been suggested to develop more women in the field, including mentoring novice women constructors and encouraging women constructors to publish their puzzles independently.^{[70][66]}

Crossword venues other than *New York Times* have recently published higher percentages of women than that puzzle. In the spring of 2018, Patti Varol and Amy Reynaldo organized and edited a pack of 18 puzzles constructed by women called "Women of Letters".^[71] Inspired by this, Laura Braunstein and Tracy Bennett launched *The Inkubator*, a "twice-monthly subscription service that will publish crosswords constructed by cis women, trans women, and woman-aligned constructors."^[72] *The Inkubator* raised over \$30,000 in its initial Kickstarter campaign,^[73] and began publishing puzzles on January 17, 2019. A book of 100 puzzles, *Inkubator Crosswords: 100 Audacious Puzzles by Women and Nonbinary Creators*, was published in 2022.^[74] On February 8, 2023, they announced to subscribers that 2023 would be their final year as a subscription service.^[75]

Non-English languages

Owing to the large number of words ending with a vowel, Italian crossword-makers have perhaps the most difficult task. The right margin and the bottom can be particularly difficult to put together. From such a perspective, Swedish crossword-makers have a far easier task. Especially in the large picture crosswords, both conjugation of verbs and declension of adjectives and nouns are allowed. A Swedish clue like "*kan sättas i munnen*" = "*sked*" ("can be put in the mouth" = "spoon") can be grammatically changed; "*den kan sättas i munnen*" = "*skeden*" ("it can be put in the mouth" = "the spoon"), as the definite form of a noun includes declension.

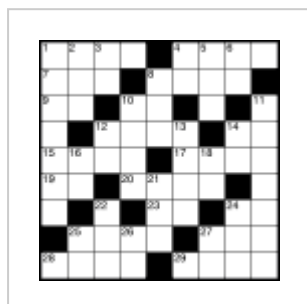
Orthography

From their origin in New York, crosswords have spread to many countries and languages. In languages other than English, the status of diacritics varies according to the orthography of the particular language, thus:

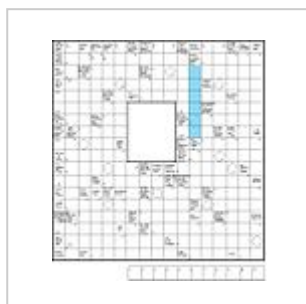
- in Afrikaans all diacritical markings are ignored. Words such as *TEE* (meaning opposed) and *TEE* (meaning tea) are both simply written *TEE*. The same goes for *SÊ* (say) and *SE* (belonging to) and many others.
- in Czech and Slovak, diacritics are respected and *ch*, being considered one letter, occupies one square.

- in Dutch crosswords, the *ij* digraph is considered one letter, filling one square, and the *IJ* and the *Y* (see Dutch alphabet) are considered distinct. Rules may vary in other word games.
- in Esperanto crosswords, diacritics are respected, as they form separate letters (graphemes).^[76]
- in French, in Spanish and in Italian, accent marks and most other diacritical markings are ignored, except the tilde in Spanish: for instance, in French, the final *E* of answer *ÊTRE* can double as the final *É* of *CONGÉ* when written *ETRE* and *CONGE*; but in Spanish, *N* and *Ñ* are distinct letters.
- In Frisian diacritics are fully respected.
- in German language crosswords, the umlauts *ä*, *ö*, and *ü* are dissolved into *ae*, *oe*, and *ue*, and *ß* is dissolved into *ss*.
- in Hungarian, diacritics are either fully respected, or not respected where they denote length: that is *I/Í*, *O/Ó*, *Ö/Ő*, *U/Ú*, *Ü/Ű* are considered the same, but not *A/Á* and *E/É* which mark different sounds; although the difference between the short/long pairs of letters is a distinctive feature in Hungarian. Digraphs fill two squares.
- in Irish crosswords, the accents on *Á É Í Ó Ú* are all respected, so (for example) the *Í* in *SÍB* cannot double as the *I* in *SLIABH*.
- in Latin, diacritics are ignored. Therefore, *A* is considered the same as *Ǽ* or *Ā*. Ecclesiastical Latin is normally used. See the monthly magazine of Latin crosswords *Hebdomada Aenigmatum* as a reference.^[77]
- in Portuguese, diacritics are ignored with the exception of *Ç*. Therefore, *A* could be checked with *Ǽ* or *Á*.
- in Romanian, diacritics are ignored.
- in Russian, *Ё* doubles as *Е* but *Й* is considered different from *И*; the soft sign *Ь* and the hard sign *Ъ* occupy a separate square, different from that of the previous letter.
- in Spanish crosswords, the digraphs *ch* and *ll* fill two squares, although in some old crosswords (from prior to the 1996 spelling reform) they filled one square.

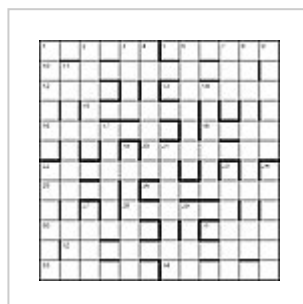
Grid design, clues, and conventions



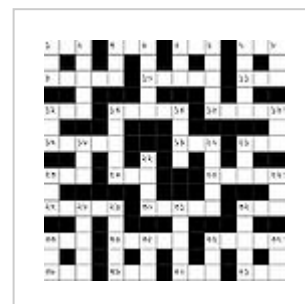
Japanese-style



Swedish-style



Barred grid where bold bars are used instead of shaded blocks to separate the words



A Bengali crossword grid



Person solving a
Finnish crossword
puzzle

French-language crosswords are smaller than English-language ones, and not necessarily square: there are usually 8–13 rows and columns, totaling 81–130 squares. They need not be symmetric and two-letter words are allowed, unlike in most English-language puzzles. Compilers strive to minimize use of shaded squares. A black-square usage of 10% is typical; Georges Perec compiled many 9×9 grids for Le Point with four or even three black squares.^[78] Rather than numbering the individual clues, the rows and columns are numbered as on a chessboard. All clues for a given row or column are listed, against its number, as separate sentences.

In Italy, crosswords are usually oblong and larger than French ones, 13×21 being a common size. As in France, they usually are not symmetrical; two-letter words are allowed; and the number of shaded squares is minimized. Nouns (including surnames) and the infinitive or past participle of verbs are allowed, as are abbreviations; in larger crosswords, it is customary to put at the center of the grid phrases made of two to four words, or forenames and surnames. A variant of Italian crosswords does not use shaded squares: words are delimited by thickening the grid. Another variant starts with a blank grid: the solver must insert both the answers and the shaded squares, and across and down clues are either ordered by row and column or not ordered at all.

Modern Hebrew is normally written with only the consonants; vowels are either understood, or entered as diacritical marks. This can lead to ambiguities in the entry of some words, and compilers generally specify that answers are to be entered in ktiv male (with some vowels) or ktiv haser (without vowels). Further, since Hebrew is written from right to left, but Roman numerals are used and written from left to right, there can be an ambiguity in the description of lengths of entries, particularly for multi-word phrases. Different compilers and publications use differing conventions for both of these issues.

In the Japanese language crossword; because of the writing system, one syllable (typically katakana) is entered into each white cell of the grid rather than one letter, resulting in the typical solving grid seeming small in comparison to those of other languages. Any second Yōon character is treated as a full syllable and is rarely written with a smaller character. Even cipher crosswords have a Japanese equivalent, although pangrammaticity does not apply. Crosswords with kanji to fill in are also produced, but in far smaller number as it takes far more effort to construct one. Despite Japanese having three writing forms - hiragana, katakana, and kanji - they are rarely mixed in a single crossword puzzle. The design of Japanese crossword grids often follows two additional rules: that shaded cells may not share a side (i.e. they may not be orthogonally contiguous) and that the corner squares must be white.

A. N. Prahlada Rao, based in Bangalore, has composed/ constructed some 35,000 crossword puzzles in the language Kannada, including 7,500 crosswords based on films made in Kannada, with a total of 10,00,000 (ten lakhs, or one million) clues.^{[79][80]} His name was recorded in the Limca Book Of Records in 2015 for creating the highest number of crosswords in any Indian Regional Language. He continued to hold this title through 2016 and 2017.^[81] In 2008, a five volume set of his puzzles was released, followed by 7 more volumes in 2017.^[82] Bengali is also well known for its crossword puzzles. Crosswords are published regularly in most Bengali dailies and periodicals. The grid system is similar to the British style and two-letter words are usually not allowed.

In Poland, crosswords typically use British-style grids, but some do not have shaded cells. Shaded cells are often replaced by boxes with clues—such crosswords are called Swedish puzzles or Swedish-style crosswords. In a vast majority of Polish crosswords, nouns are the only allowed words.

Swedish crosswords are mainly in the illustrated (photos or drawings), in-line clue style typical of the "Swedish-style grid". The "Swedish-style" grid (picture crosswords) uses no clue numbers. Instead, clues are contained in the cells which do not contain answers, with arrows indicating where and in what direction to fill in answers. Arrows can be omitted from clue cells, in which case the convention is for the answer to go horizontally to the right of the clue cell, or – if the clue cell is split vertically and contains two clues – for the answer to go horizontally to the right for the top clue and vertically below for the bottom clue. This style of grid is also used in several countries other than Sweden, often in magazines, but also in daily newspapers. The grid often has one or more photos replacing a block of squares as a clue to one or several answers; for example, the name of a pop star, or some kind of rhyme or phrase that can be associated with the photo. These puzzles usually have no symmetry in the grid but instead often have a common theme (literature, music, nature, geography, events of a special year, etc.) This tradition prospered already in the mid-1900s, in family magazines and sections of newspapers. Then the specialised magazines took off. Around the turn of the millennium, approximately half a dozen Swedish magazine publishers produced specialised crossword magazines, totaling more than twenty titles, often published on a monthly basis. The oldest extant crossword magazine published in Swedish is *Krysset*^[83] (from Bonnier), founded in 1957. Additionally, nearly all newspapers publish crosswords of some kind, and at weekends often devote specialised sections in the paper to crosswords and similar type of pastime material. Both major evening dailies (*Aftonbladet* and *Expressen*) publish a weekly crossword supplement, named *Kryss & Quiz* and *Korsord*^[84] respectively. Both are available as paid supplements on Mondays and Tuesdays, as part of the ongoing competition between the two newspapers.

Construction

American-style crosswords

In typical themed American-style crosswords, the theme is created first, as a set of symmetric long across answers will be needed around which the grid can be created.^{[85][86]} Since the grid will typically have 180-degree rotational symmetry, the answers will need to be also: thus a typical 15×15 square American puzzle might have two 15-letter entries and two 13-letter entries that could be arranged appropriately in the grid (e.g., one 15-letter entry in the third row, and the other symmetrically in the 13th row; one 13-letter entry starting in the first square of the 6th row and the other ending in the last square of the 10th row).^{[86][87]} The theme must not only be funny or interesting, but also internally consistent. In the April

26, 2005 by Sarah Keller mentioned above, the five themed entries contained in the different parts of a tree: SQUAREROOT, TABLELEAF, WARDROBETRUNK, BRAINSTEM, and BANKBRANCH. In this puzzle, CHARTER OAK would *not* be an appropriate entry, as all the other entries contain different parts of a tree, not the name of a kind of tree. Similarly, FAMILY TREE would not be appropriate unless it were used as a *revealer* for the theme (frequently clued with a phrase along the lines "... *and a hint to ...*"). Given the existing entries, SEED MONEY would also be unacceptable, as all the other theme entries *end* in the part of a tree as opposed to beginning with it, though the puzzle could certainly be changed to have a mix of words in different positions.^[85]

Once a consistent, appropriate theme has been chosen, a grid is designed around that theme, following a set of basic principles:

- Generally, most American puzzles are 15×15 squares; if another size, they typically have an odd number of rows and columns: e.g., 21×21 for "Sunday-size" puzzles; *Games* magazine will accept 17×17 puzzles, *Simon & Schuster* accepts both 17×17 and 19×19 puzzles, and *The New York Times* requires diagramless puzzles to be 17×17.^[88] The odd number of squares on a side ensures that achieving symmetry is easier; with even-numbered puzzles the central block of four squares makes constructing a symmetrical puzzle considerably more difficult.^[89]
- The black squares must be arranged so as to (1) ensure there are no two-letter words; (2) form 180-degree rotational symmetry (so that if the grid is turned upside-down, the pattern of black squares remains the same); (3) ensure that every letter is checked (appears in both an across and a down word); (4) not occupy too much of the puzzle (generally speaking, 16% of the puzzle is considered a rough limit for the percentage of black squares); (5) ensure that the entire puzzle has "all-over interlock"—that is, that the black squares do not "cut" the puzzle into separate sections; and (6) ensure that (generally) no non-theme entry is longer than any of the theme entries. In addition, it is considered advisable to minimize the number of so-called "cheater" black squares, i.e., black squares whose removal would not change the word count of the puzzle but which make it easier to fill by shortening the length of the words therein.^{[86][87][90]}
- The grid is then filled with suitable words, keeping in mind that (1) no word can be repeated in the grid (with the exception of prepositions or articles); (2) profanity or graphic or "unpleasant" words are generally not allowed;^[91] (3) obscurity is strongly discouraged in easy puzzles and should be kept to a minimum in more difficult puzzles, where two obscure words should never be allowed to cross (known in crossword jargon as a "Natick"^[92]) (and, ideally, where the obscure word would be of interest to most solvers—a genus of little-known water bugs would not be a good choice); (4) uncommon abbreviations and variant foreign spellings should be avoided, as well as the use of *crosswordese* (those words that no longer appear in common speech but that occur frequently in crosswords due to their favorable letter combinations, such as the Asian buffalo ANOA); (5) in modern puzzles, pop figures and corporate and brand names are generally considered acceptable; (6) no made-up words are permitted—there should be a dictionary or other reference that can cite each entry if asked.^{[86][90]}
- Modern constructors frequently (although not always) use software to speed up the task. Several programs are available, of which the most widely accepted is Crossword Compiler.^[85] These programs, although they cannot create themes and cannot distinguish between "good" fill (fun, interesting words vs. dull obscurity), do speed up the process and will allow the constructor to realize if they have hit a dead end.^[93]

Crossword puzzle payments for standard 15×15 puzzles from the major outlets range from \$50 (*Games*) to \$500 (*The New York Times*) while payments for 21×21 puzzles range from \$250 (*Newsday*) to \$1,500 (*The New York Times*).^[94]

The compensation structure of crosswords generally entails authors selling all rights to their puzzles upon publication, and as a result receiving no royalties from republication of their work in books or other forms.

Software

Software that aids in *creating* crossword puzzles has been written since at least 1976;^[95] one popular example was Crossword Magic for the Apple II in the 1980s.^[96] The earliest software relied on people to input a list of fill words and clues, and automatically maps the answers onto a suitable grid. This is a search problem in computer science because there are many possible arrangements to be checked against the rules of construction. Any given set of answers might have zero, one, or multiple legal arrangements. Modern open source libraries exist that attempt to efficiently generate legal arrangements from a given set of answers.^[97]

In the late 1990s, the transition began from mostly hand-created arrangements to computer-assisted, which creators generally say has allowed authors to produce more interesting and creative puzzles, reducing crosswordese.^[98]

Modern software includes large databases of clues and answers, allowing the computer to randomly select words for the puzzle, potentially with guidance from the user as to the theme or a specific set of words to pick with greater probability. Many serious users add words to the database as an expression of personal creativity or for use in a desired theme. Software can also be used to assist the user in finding words for a specific spot in an arrangement by quickly searching through the dictionary for all words that fit.^[98]

In 1998 in Jakarta, publisher Elex Media Komputindo (Gramedia Group) published a crossword software entitled "Teka-Teki Silang Komputer" (Computerized Crossword Puzzle [Eng]) in diskette form. It is the first Crossword Puzzle software published in Indonesia. Created by Sukmono Bayu Adhi, the software is archived in the National Library of the Republic of Indonesia (Salemba Library, Jakarta).^[99]

Notation

Originally Petherbridge called the two dimensions of the crossword puzzle "Horizontal" and "Vertical". Among various numbering schemes, the standard became that in which only the start squares of each word were numbered, from left to right and top to bottom. "1 Horizontal" and "1 Vertical" and the like were names for the clues, the cross words, or the grid locations, interchangeably.

Later in the *Times* these terms commonly became "across" and "down" and notations for clues could either use the words or the letters "A" and "D", with or without hyphens.

See also



Games portal

- Bananagrams
- Cross Sums
- Crosswordese
- Merv Griffin's Crosswords, a crossword-based game show that debuted in fall 2007
- People Puzzler, a game show based on the pop-culture crossword puzzles in People Magazine, currently airing on Game Show Network
- Scrabble (see also Scrabble variants)
- Str8ts
- Sudoku
- The Cross-Wits, a crossword-based game show that ran in the 1970s and 1980s
- Upwords
- Wheel of Fortune, a letter-based game show that incorporated crosswords in 2016
- Word search
- Wordplay, a 2006 documentary film about crossword puzzles

References

1. Shortz, Will (April 8, 2001). "Endpaper: How to; Solve The New York Times Crossword Puzzle" (<https://www.nytimes.com/2001/04/08/magazine/08PUZZLE.html?ex=1236830400&en=5e6b94bdf1884b70&ei=5070>). *The New York Times*.
2. "American-style crosswords" (<https://www.theguardian.com/crosswords/series/american-style/>). Theguardian.
3. Berry, Patrick (2015). *Crossword Constructor's Handbook* (<http://aframegames.com/store/?download=21>). pp. 62–80.
4. D. S. MacNutt with A. Robins, *Ximenes on the art of the crossword*, Methuen & Co Ltd, London (1966) p. 49.
5. "How to Make a Crossword Puzzle" (<http://crosswordhobbyist.com/how-to-make-a-crossword-puzzle>). *crosswordhobbyist.com*.
6. "Identified theme. types" (<http://www.cruciverb.com/index.php?action=ezportal;sa=page;p=70>). Cruciverb.com. Retrieved 5 March 2013.
7. Der, Kevin G. "New York Times crossword of October 7, 2011" (<http://www.xwordinfo.com/Crossword?date=10/7/2011>). XWordInfo.com. Retrieved 5 March 2013.
8. Worley, Sam (28 March 2012). "The Puzzler and the Puzzled" (<https://chicagoreader.com/news-politics/the-puzzler-and-the-puzzled/>). *Chicago Reader*. Retrieved 16 August 2024.
9. Flexner, Stuart Berg (8 July 1984). "FUN (2 WORDS)" (<https://www.nytimes.com/1984/07/08/books/fun-2-words.html>). *The New York Times*. Retrieved 16 August 2024.
10. "HAROLD BERS, 47, AD WRITER, DEAD; AIDE OF BATTEN, BARTON WAS CROSSWORD PUZZLE EXPERT" (<https://www.nytimes.com/1961/10/15/archives/harold-bers-47-ad-writer-dead-aide-of-batten-barton-was-crossword.html>). *The New York Times*. 15 October 1961. Retrieved 16 August 2024.
11. Arnot, Michelle (1981). *What's Gnu? A History of the Crossword Puzzle* (<https://archive.org/details/whatsgnuhistoryo0000arno/page/114/mode/1up?q=%22harold+t.+bers%22>). New York: Vintage Books. p. 114. ISBN 978-0-394-74408-7. Retrieved 16 August 2024.
12. Gaffney, Matt. "Matt Gaffney's Weekly Crossword Contest Frequently Asked Questions" (<http://xwordcontest.com/faq>). Retrieved 30 September 2015.
13. Gaffney, Matt (14 August 2015). "Eight Isn't Enough" (<http://xwordcontest.com/2015/08/mgw-cc-376-friday-august-14th-2015-eight-isnt-enough.html>). Retrieved 30 September 2015.

14. Gaffney, Matt. "Contest Crosswords 101" (<https://www.wsj.com/articles/contest-crosswords-101-how-to-solve-puzzles-11625757841>). *The Wall Street Journal*. Dow Jones & Company, Inc. Retrieved 18 Feb 2024.
15. PastWSJCCsolutions. "Past WSJ Crossword Contests & Solutions" (<https://www.xword-muggles.com/viewtopic.php?t=277>). *XWord Muggles Forum*. Retrieved 18 Feb 2024.
16. Pahk, Joon (2012-05-09). "Comment, Thursday, May 9, 2012" (<https://crosswordfiend.com/2012/05/09/thursday-51012/#comment-147469>). *Diary of a Crossword Fiend*. Retrieved 2019-11-25.
17. "Quantum" (<http://www.xwordinfo.com/Quantum>). *xwordinfo.com*.
18. Farrell, Jeremiah. "New York Times puzzle of Tuesday, November 5, 1996" (<http://www.xwordinfo.com/Crossword?date=11/5/1996>). *xwordinfo.com*. Retrieved 16 January 2017.
19. Amende, Coral (2001). *The Crossword Obsession* (<https://archive.org/details/crosswordobsessi00amen>). New York: Berkley Books. ISBN 978-0756790868.
20. Tausig, Ben. "New York Times puzzle of Thursday, September 1, 2016" (<http://www.xwordinfo.com/Crossword?date=9/1/2016>). *xwordinfo.com*. Retrieved 16 January 2017.
21. Roeder, Oliver (September 2016). "One of the Most Important Crosswords in New York Times History" (http://www.slate.com/articles/life/gaming/2016/09/ben_tausig_s_new_york_times_puzzle_is_one_of_history_s_most_important_crosswords.html). *Slate*. Retrieved 16 January 2017.
22. "Crosswords" (<https://www.thetimes.com/puzzles/crossword>). *The Times*. Times Media Limited. Retrieved 11 July 2024.
23. "Crosswords" (<https://www.theguardian.com/crosswords>). *The Guardian*. Guardian News & Media Limited. Retrieved 11 July 2024.
24. "Daily Games" (<https://games.dailymail.co.uk/category/daily>). *Daily Mail*. Retrieved 11 July 2024.
25. "Cryptic crosswords: A puzzling British obsession" (<https://www.bbc.com/culture/article/20210302-cryptic-crosswords-a-puzzling-british-obsession>). *www.bbc.com*. Retrieved 2021-10-31.
26. Hardcastle, D. (n.d.). *Cryptic crossword clues: Generating text with hidden meaning*.
27. Dexter, Colin (19 Sep 2005). "How to solve crosswords" (<https://www.theguardian.com/theguardian/2005/sep/19/features11.g21>). *The Guardian*. Retrieved 11 July 2024.
28. Poole, David L.; Mackworth, Alan K. (2010). *Artificial Intelligence: Foundations of Computational Agents*. New York: Cambridge University Press. ISBN 978-0-521-51900-7.
29. "Arrowword" (<http://www.puzzler.com/Puzzles-encyclopedia/Arrowword.htm>). *puzzler.com*. Retrieved May 17, 2011.
30. "St. Nicholas. September 1875, page 66" (http://www.childrenslibrary.org/library/books/d/dodstni_00362329/book/page0066.html). *Childrenslibrary.org*. Retrieved 2013-11-26.
31. "Storia delle parole crociate e del cruciverba" (http://www.crucienigmi.it/Storia_delle_parole_crociate.htm) (in Italian). *Crucienigmi*. Retrieved August 28, 2009.
32. "The Crossword Puzzle" (<https://web.archive.org/web/20030302082052/http://web.mit.edu/invent/iow/crosswordhome.html>). Massachusetts Institute of Technology. August 1997. Archived from the original (<http://web.mit.edu/invent/iow/crosswordhome.html>) on 2003-03-02. Retrieved 2010-12-18.
33. Bellis, Mary. "The History of Crossword Puzzles" (<https://archive.today/20120717035047/http://inventors.about.com/od/cstartinventions/a/crossword.htm>). *About.com*. Archived from the original (<http://inventors.about.com/od/cstartinventions/a/crossword.htm>) on July 17, 2012. Retrieved 2010-12-18.
34. Amlen, Deb. "How the Crossword Became an American Pastime" (<https://www.smithsonianmag.com/arts-culture/crossword-became-american-pastime-180973558/>). *Smithsonian*. Retrieved 2020-01-06.

35. "Cross-Word Puzzle" (<https://news.google.com/newspapers?nid=djft3U1LymYC&dat=19160611&printsec=frontpage&hl=en>). *The Pittsburgh Press*. June 11, 1916. Comic section's fifth page.
36. *The Boston Globe*, April 8, 1917, p. 43 contains a puzzle and a solution to a previous week's puzzle.
37. "Movie of a Man Doing the Cross-Word Puzzle", by "Briggs", *Morning Oregonian*, October 3, 1922, p. 14; also published in several other newspapers.
38. "There Goes My Crossword Puzzle, Get Up Please". *The Boston Daily Globe*, October 1, 1923, p. 7.
39. "Jottings About Town". *The New Yorker*, February 21, 1925, p. 30.
40. *Report of the New York Public Library for 1924* (https://books.google.com/books?id=P_4aA AAAMAAJ&pg=RA3-PA24); published by The Library, 1925
41. Frederick Lewis Allen (1931). *Only Yesterday* (<https://archive.org/details/onlyyesterdayinf00a lle>). Harper and Row., p. 159 of 1964 Perennial Library paperback reprint
42. "Best crossword puzzles Writers" (<https://crosswordanswers911.net/meet-the-faces-behind-your-favorite-crossword-puzzles-worlds-best-crossword-writers/>). Sunday, 22 August 2021
43. "Topics of the Times". *The New York Times*, November 17, 1924, p. 18
44. "Condemns Cross-Word Fad". *The New York Times*, December 23, 1924, p. 17
45. "Barometer" (<https://web.archive.org/web/20090122234751/http://www.time.com/time/magazine/article/0,9171,719730,00.html>). *Time*. January 5, 1925. Archived from the original (<http://www.time.com/time/magazine/article/0,9171,719730,00.html>) on January 22, 2009. Retrieved 2008-08-05.
46. Topics of the Times: Sees Harm, Not Education" *The New York Times*, March 10, 1925, p. 20,
47. "All About the Insidious Game of Anagrams", *The New York Times*, December 29, 1929, p. BR3
48. Richard H. (1930), "The Lure of the Puzzle". *The New York Times*, February 4, 1930, p. 20
49. "crossword" (<http://www.oed.com/view/Entry/44952?redirectedFrom=crossword&>). *OED Online*. March 2017. Oxford University Press. (accessed April 28, 2017).
50. Millington, Roger. "The Strange World of the Crossword (excerpt)" (<http://www.crossword.org.uk/mathers.htm>). Retrieved 18 Feb 2024.
51. Cox, Emily; Rathvon, Henry. "Cryptic Puzzles by Emily Cox & Henry Rathvon" (<https://coxrat hvon.com>). *Cox Rathvon (Hex)*. Retrieved 17 Feb 2024.
52. Zimmer, Ben (2020-08-24). "Curiouser and Curiouser: More Wordplay in Puzzling Times" (<https://beyondwordplay.com/curiouser-and-curiouser-more-wordplay-in-puzzling-times-85b88716dace>). *Beyond Wordplay*. Retrieved 2024-09-15.
53. *The Daily Telegraph – 80 Years of Cryptic Crosswords*, p. 44.
54. (Pat-Ella) "Crossword setter hits puzzling landmark" (<https://web.archive.org/web/20070516041322/http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2007/05/14/nclue14.xml>), Richard Savill, *The Daily Telegraph*, May 15, 2007
55. "XWord Info" (<https://web.archive.org/web/20200101085646/https://www.xwordinfo.com/>). Archived from the original (<https://www.xwordinfo.com/>) on 2020-01-01. Retrieved 2020-04-14.
56. "New York Times, Saturday, June 29, 2013" (<https://www.xwordinfo.com/Crossword?date=6/29/2013>). Xwordinfo.com. Retrieved 2022-04-29.
57. "Friday, July 27, 2012 crossword by Joe Krozel" (<http://www.xwordinfo.com/Crossword?date=7/27/2012>). Xwordinfo.com. 2012-07-27. Retrieved 2013-11-26.
58. "Most Crosswords Created (Regional Language)" (<https://www.coca-colaindia.com/stories/most-crosswords-created--regional-language->). *The Coca-Cola Company*. Retrieved 2021-06-28.

59. "World Records 2019 | Kalams World Records" (<http://www.kalamsworldrecords.com/world-records-2019/>).
60. "Elizabeth C. Gorski" (<http://www.xwordinfo.com/Thumbs?author=Elizabeth+C.+Gorski>). *xwordinfo.com*. Retrieved 17 January 2017.
61. Shechtman, Anna (2014). "Puzzle Trouble: Women and Crosswords in the Age of Autofill" (<http://theamericanreader.com/puzzle-trouble-women-and-crosswords-in-the-age-of-autofill/>). *The American Reader*. Retrieved 17 January 2017.
62. Steinberg, David. "The Pre-Shortzian Puzzle Project" (<http://www.preshortzianpuzzleproject.com/>). Retrieved 17 January 2014.
63. "Women constructors in the Shortz Era" (<http://www.xwordinfo.com/Women>). *xwordinfo.com*. Retrieved 17 January 2017.
64. Kosman, Joshua; Picciotto, Henry (2014). "Puzzling Women: Where are the female constructors?" (<https://web.archive.org/web/20170202074502/https://www.thenation.com/article/puzzling-women/>). *thenation.com*. Archived from the original (<https://www.thenation.com/article/puzzling-women/>) on 2 February 2017. Retrieved 18 January 2017.
65. Tausig, Ben (21 August 2013). "The Crossword Puzzle: Where'd the Women Go?" (<https://web.archive.org/web/20170422010202/https://thehairpin.com/the-crossword-puzzle-where-d-the-women-go-c25dee229b3f#.ufszwy6ib>). *The Hairpin*. Archived from the original on 22 April 2017. Retrieved 17 January 2017.
66. "Elizabeth Gorski: New York Times Crossword Creator" (<http://www.ravishly.com/ladies-we-love/elizabeth-gorski-new-york-times-crossword-creator>). *Ravishly.com*. 2014. Retrieved 17 January 2017.
67. Graham, Ruth (2016). "Why Is the New York Times Crossword So Clueless About Race and Gender?" (http://www.slate.com/blogs/xx_factor/2016/06/28/the_new_york_times_crossword_can_be_clueless_about_race_and_gender.html). *Slate.com*. Retrieved 17 January 2017.
68. Jeffries, Adrienne (2017). "The NYT Crossword Is Old and Kind Of Racist" (<https://theoutline.com/post/1651/the-nyt-crossword-is-old-and-kind-of-racist>). *The Outline*. Retrieved 14 June 2017.
69. Alan Connor (10 April 2017). "Crossword blog: meet the setter – Nutmeg" (<https://www.theguardian.com/crosswords/crossword-blog/2017/apr/10/crossword-blog-meet-the-setter-nutmeg>). *The Guardian*. Retrieved 18 July 2023.
70. Reynaldo, Amy (2014). "Women and Crossword Construction, Part 1: Why the underrepresentation?" (<http://crosswordfiend.com/2014/03/06/women-and-crossword-construction-part-1-why-the-underrepresentation/>). *Diary of a Crossword Fiend*. Retrieved 17 January 2017.
71. "Women of Letters" (<https://www.pattivarol.com/women-of-letters>). *Patti Varol*.
72. Gavin, Hailey (23 October 2018). "The Inkubator Is on a Mission to Publish More Female Crossword Puzzle Constructors" (<https://slate.com/culture/2018/10/inkubator-aims-to-publish-more-female-crossword-constructors.html>). *Slate.com*. Slate. Retrieved 16 January 2019.
73. "The Inkubator – Kickstarter" (<https://www.kickstarter.com/projects/laurabrarian/the-inkubator/description>). Retrieved 16 January 2019.
74. "Inkubator Crosswords" (<https://publishing.andrewsmcmeel.com/book/inkubator-crosswords-tracy-bennett/>). *Andrews McMeel Publishing*. Retrieved 2023-03-25.
75. "the following announcement recently went to our subscribers: After much careful thought, the Inkubator team has made the decision that 2023 will be our last year as a subscription service +" (<https://twitter.com/InkubatorXWords/status/1625260056475320326>). *Twitter*. Retrieved 2023-03-25.
76. "Home" (<https://web.archive.org/web/20220420015740/http://www.semajnodeenigmoj.com/>). *www.semajnodeenigmoj.com*. Archived from the original (<http://www.semajnodeenigmoj.com/>) on 20 April 2022. Retrieved 25 March 2018.

77. "Latin crosswords – Cruciverba in latino – Aenigmata latina" (<https://www.laticcrosswords.com/>). *Latincrosswords.com*.
78. "Histoire des mots croisés. Chapitre VI" (<https://web.archive.org/web/20140424053129/http://homepage.urbanet.ch/cruci.com/textes/histoire6.htm>). Homepage.urbanet.ch. Archived from the original (<http://homepage.urbanet.ch/cruci.com/textes/histoire6.htm>) on 2014-04-24. Retrieved 2013-11-26.
79. "Making clues" (<http://www.thehindubusinessline.in/2001/05/14/stories/101444g3.htm>). Thehindubusinessline.in. 2001-05-14. Retrieved 2013-11-26.
80. "Details" (<http://www.vijaykarnatakaepaper.com/Details.aspx?id=6041&boxid=1222762>). *www.vijaykarnatakaepaper.com*.
81. "Limca Book of Records" (<https://www.coca-colaindia.com/stories/most-crosswords-created-regional-language->). *www.limcabookofrecords.in*.
82. "Karnataka / Bangalore News : Kannada crossword puzzles launched" (<https://web.archive.org/web/20090724083952/http://www.hindu.com/2008/02/17/stories/2008021753500400.htm>). *The Hindu*. 2008-02-17. Archived from the original (<http://www.hindu.com/2008/02/17/stories/2008021753500400.htm>) on 2009-07-24. Retrieved 2013-11-26.
83. "Krysset – klassikern med kvalitet och kunskap" (<http://krysset.se/Corpbiz/1164/>). Krysset.se. Retrieved 2012-01-04. (in Swedish)
84. "Dagens bilaga med Expressen – Korsord" (<http://www.expressen.se/omexpressen/1.2460276/dagens-bilaga-med-expressen-korsord>). Expressen.se. Retrieved 2012-01-04. (in Swedish)
85. Salomon, Nancy. "Notes from a Mentor" (<http://www.cruciverb.com/index.php?action=eportal;sa=page;p=22>). cruciverb.com. Retrieved 25 February 2013.
86. Rosen, Mel (1995). *Random House Puzzlemaker's Handbook*. New York: Random House. ISBN 9780812925449.
87. Kurzban, Stanley A. (1981). *The Compleat Cruciverbalist: Or How to Solve and Compose Crossword Puzzles for Fun and Profit* (<https://archive.org/details/compleatcruciver00kurz>). Van Nostrand Reinhold. ISBN 978-0442257385.
88. "Publisher Specifications" (<http://www.cruciverb.com/index.php?action=eportal;sa=page;p=9>). cruciverb.com. Retrieved 25 February 2013.
89. Gore, Molly (15 November 2007). "Math professor and crossword constructor gives puzzle advice" (http://www.thesantaclara.com/2.14532/math-professor-and-crossword-constructor-gives-puzzle-advice-1.1870291?pagereq=1#.USwF4xnDN_0). *The Santa Clara*. Santa Clara, California. Retrieved 25 February 2013.
90. "Basic Rules" (<http://www.cruciverb.com/index.php?action=eportal;sa=page;p=21>). cruciverb.com. Retrieved 25 February 2013.
91. Der, Kevin; Pasco, Paolo. "How to Make a Crossword Puzzle" (<https://www.nytimes.com/2018/06/13/crosswords/how-to-make-a-crossword-fill.html>). *New York Times*. Retrieved 17 July 2024. "the "Sunday Morning Breakfast Test," which means that every entry in a crossword should be sufficiently family-friendly. The first New York Times crossword editor, Margaret Farrar, went further and once wrote that crosswords should avoid "death, disease, war and taxes." "
92. Schechtman, Anna (20 December 2021). "Escaping Into the Crossword Puzzle" (<https://web.archive.org/web/20240705004907/https://www.newyorker.com/magazine/2021/12/27/escaping-into-the-crossword-puzzle>). *The New Yorker*. Condé Nast. Archived from the original (<https://www.newyorker.com/magazine/2021/12/27/escaping-into-the-crossword-puzzle>) on 5 July 2024. Retrieved 17 July 2024. "I had created what in crossword jargon is called a Natick, an unjustified intersection of two obscure answers, leaving the solver with no hope but to guess at the solution"

93. Holmes, Kristin E. (29 April 2007). "A passion to fit words together" (<https://web.archive.org/web/20130420160823/http://www.crosswordtournament.com/articles/inq042907.htm>). *The Philadelphia Inquirer* (archived at [crosswordtournament.com](http://www.crosswordtournament.com)). Archived from the original (<http://www.crosswordtournament.com/articles/inq042907.htm>) on 20 April 2013. Retrieved 25 February 2013.
94. "Publisher chart" (<http://www.cruciverb.com/index.php?action=ezportal;sa=page;p=19>). [cruciverb.com](http://www.cruciverb.com). Retrieved 25 February 2013.
95. "'Dr.Fill' Vies for Crossword Solving Supremacy" (<https://www.sciencefriday.com/segments/dr-fill-vies-for-crossword-solving-supremacy/>). 19 Sep 2014.
96. "1980–84 Misc" (<http://apple2history.org/appendix/aha/aha80/>). 9 July 2010.
97. "Crossword Layout Generator – Open Source" (<https://web.archive.org/web/20191117121039/https://projectboard.engineering.com/project/crossword-layout-generator---open-source>). 17 November 2019. Archived from the original (<https://projectboard.engineering.com/project/crossword-layout-generator---open-source>) on 17 November 2019. Retrieved 17 November 2019.
98. Julie Leibach (19 September 2014). "Inside the Box: Crossword Puzzle Constructing in the Computer Age" (<https://www.sciencefriday.com/articles/inside-the-box-crossword-puzzle-constructing-in-the-computer-age/>).
99. The catalog can be accessed online at <http://opac.perpusnas.go.id/DetailOpac.aspx?id=62691>

Further reading

- *The Crossword Obsession* by Coral Amende ISBN [0-425-18157-X](#)
- *Crossworld* by Marc Romano ISBN [0-7679-1757-X](#)
- Alan Connor (2015). *The Crossword Century: 100 Years of Witty Wordplay, Ingenious Puzzles, and Linguistic Mischief*. Avery. ISBN [978-1592409389](#).

External links

 Media related to [Crosswords](#) at Wikimedia Commons

- [Why are crossword puzzles symmetrical?](https://www.straightdope.com/21341628/why-are-crossword-puzzles-symmetrical) (<https://www.straightdope.com/21341628/why-are-crossword-puzzles-symmetrical>) (from [The Straight Dope](#))

Retrieved from "<https://en.wikipedia.org/w/index.php?title=Crossword&oldid=1245892748>"