0-based indexing: the form of indexing, natural to computers, in which index values start at 0, as in 0, 1, 2, 3, … . See also 1-based indexing.

1-based indexing: the form of indexing, natural to human beings, in which index values start at 1, as in 1, 2, 3, 4, … . See also 0-based indexing.

additive digital root: digit reduction.

adjacent duplicates: identical successive terms in a sequence, as 1 and 1 in 1, 2, 1, 1, 3, … .

algebraic number: ?

algorithm: a procedure that produces the correct results and is guaranteed to stop eventually.

alternating-parity sequence: an integer sequence in which successive terms are alternately even and odd (or odd and even).

aperiodic pattern: a pattern that cannot be composed by repetition of a motif. Such patterns are necessarily infinite.

aperiodic sequence: a sequence that cannot be composed by successively repeating another sequence. Such sequences are necessarily infinite. See also periodic sequence.

append: to add a string to (concatenate onto) the end of another string. See also prepend.

argument: a value given to a function upon which the value of the function is based. See also operand and parameter.

array: ?. See matrix.

arithmetic sequence: an integer sequence in which successive values differ by a constant, as in 2, 4, 6, 8, … .

as drawn in: treadled as drawn in.

ascending straight draw: a t-sequence consisting of repeats of runs from 1 to the bound, as in 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, … .
ASCII: the character set in common use on modern computing systems, such as Windows.

backtracking: going back to a previous place in the execution of a procedure, undoing what had been done before there, and trying an alternative.

balanced sequence:

band: with respect to drawdown tours, the sequence of colors along the path.

bar code: ?

base: the integer used as the basis for a positional numbering system.

base expansion: the expansion of a fraction represented in a positional number system. For example, the decimal expansion of 2/5 is 0.4 and the decimal expansion of 1/3 is 0.333 … .

base-2 arithmetic: arithmetic with binary numbers. See also positional number systems.

base sequence: a sequence on which an operation is based, as in the base sequence for term repetition.

basic motif: the smallest subpattern of a pattern that, when repeated, produces the entire pattern. Also called unit generator.

basin of attraction: in cellular automata, a pattern-sequence loop.

Beatty sequence: ?

befriending: converting a sequence to a friendly sequence.

bi-level: two-colored.

binary digit: 0 or 1. See also logical values.

binary expansion: base expansion of a fraction in the binary number system.

binary file: a computer file in which data is encoded according to the compact internal system used by computers. The term binary is derived from the low-level representation in a computer by binary digits. Binary files are not intended to be read by human beings or computer editors. Other computer programs can read binary files, but only certain kinds. Image files and word-processor files are binary files. See also text file.

binary matrix: a matrix in which the terms are binary numbers.

binary number: a number in base-2 arithmetic composed of binary digits.

binary sequence: a sequence of binary numbers.

bit: binary digit.
block design: ??

**Boolean algebra:** a mathematical system for dealing with the logical values of true and false.

**Boolean operation:** an operation in Boolean algebra that operates on logical values.

**bound:** with respect to a sequence, its largest value. Not all sequences have bounds. For example, the positive integers do not.

**bounded sequence:** a sequence that has a largest value.

**byte:** a unit of organization of computer data that on most modern computers consists of 8 bits.

**ceiling:** ??

**cell:** ??

**cellular automaton:** ??

**change ringing:** ??

**chaotic sequence:** an integer sequence whose values are erratic and unpredictable.

**character:** ??

**character code:** the internal computer representation of a character. On most modern computers, a character code is an eight-bit byte, giving 256 different characters in all.

**character set:** on a computer, the character codes, their associated meanings (if any), and glyphs. Some character codes have special uses in communicating with computer devices. Most have meanings in ordinary text, such as letters, digits, punctuation marks, and a variety of other symbols, but some characters are not intended for use in text. Since character code are binary numbers, a character set defined a corresponding order. In ASCII, for example, lowercase letters come before uppercase letters.

**circular permutation:** a permutation in which objects are rotated on one end and put on to the other. For example, a circular permutation of 1, 2, 3, 4 is 3, 4, 1, 2.

**cipher:** ??

**code:** ??

**code drafting:** drafting based on text that is encoded to produce t-sequences.

**coefficient:** in polynomials, a multiplicative constant for a term. Coefficients,
when not specified explicitly, usually are given as letters from the beginning of
the alphabet, such as a, b, and c. See also constant.

collation: interleaving the terms in two or more sequences. For example, the
collation of 1, 2, 3 and 4, 1, 2 produces 1, 4, 2, 1, 3, 2.

color-and-weave effects: ?

color drawdown: a drawdown in which cells are colored according to the
threading and treadling color sequences. Color drawdowns usually do not show
inrelacement patterns.

color patterns: with respect to weaving, color drawdowns.

color sequence: a sequence of color values.

color value: a specification that describes a color. It may be a word like red or a
numerical specification, such as an RGB value.

color weavability: the property of a color pattern that allows it to be woven in a
loom-controlled fashion.

commemorative drafting: code drafting.

complementary sequence: ?

complete sequence: a t-sequence in which each value from 1 to the bound appears
at least once. For example, with a bound of 6, the sequence 1, 3, 2, 6, 5, 4 is a
complete sequence, but 1, 2, 4, 6, 5, 2, 6, 1 is an incomplete sequence because the
value 3 is missing.

composite number: an integer that has divisors other than 1 and itself. For
example, 4 = 2 × 2 and 100 = 2 × 2 × 5 × 5 are composite numbers. Compare to prime
number.

composition: in number theory, the separation of a positive integer into positive
integers that add up to its value. For example, the compositions of 4 are 1 + 3 and
2 + 2. Order does not matter in compositions: 3 + 1 is considered to be the same
as 1 + 3. See also partition.

compression: with respect to t-sequences, converting an incomplete sequence to a
complete sequence by moving values downward to fill in for values that are not
present in the incomplete sequence. For example, compressing 1, 2, 4, 6, 5, 2, 6,
1 produces 1, 2, 3, 5, 4, 2, 5, 1. Compression reduces the bound by the number of
missing values.

concatenation: appending one object to another. Concatenation applies to patterns,
sequences, and strings. For example, the result of concatenating “abacad” and
“acaf” is “abacadacaf”.

**connected sequence**: an integer sequence in which successive terms differ by at most 1. An example is 1, 2, 3, 2, 3, 4. Compare to friendly sequence.

**constant**: in mathematical contexts, a value that does not change. When the value is not specifically given, a constant usually is represented by a letter at the beginning of the alphabet, such as \(a\), \(b\), and \(c\).

**constant sequence**: a sequence in which all values are the same, as in 3, 3, 3, 3.

**constraint**: a condition that must be met, such as requiring a drawdown to have an equal number of black and white cells.

**context-free grammar**: a formal grammar in which the rewriting rules do not depend on the symbols surrounding the one being rewritten.

**context-sensitive grammar**: a formal grammar in which the rewriting rules may depend on the symbols surrounding the one being rewritten.

**contiguous sequence**: connected sequence.

**continued fraction**: a form of fraction in which the numerators or (usually) the denominators may themselves be fractions of this form.

**core cell**: in cellular automata, the cell around which a neighborhood is defined.

**counting number**: positive integer.

**dead cell**: in the Game of Life, a cell in state 0.

**decimal expansion**: base expansion of a fraction in the decimal number system.

**decimal number**: an integer represented in the base-10 positional numbering system.

**decimation**: deleting specified values from a t-sequence.

**decimation rule**: a rule for decimating a sequence, such as deleting terms with even indexes.

**decimation sequence**: a sequence that specifies the indexes of terms to be deleted.

**degree**: with respect to a polynomial, the highest power of the variables.

**delta**: the difference between two numbers.

**delta sequence**: difference sequence.

**denominator**: ?

**descending straight draw**: a t-sequence in consisting of repeats of runs from the bound to 1, as in 8, 7, 6, 5, 4, 3, 2, 1, 8, 7, 6, 5, 4, 3, 2, 1, … .

**design sequence**: a sequence used as the basis for design, such as a t-sequence or
a color sequence.

**Dietz expression**: the design sequence derived from the kind of multivariate polynomials used by Ada Dietz.

**difference sequence**: a sequence formed by taking differences of successive terms in another sequence. For example, the difference sequence for 1, 2, 3, 4, 3, 1 is 1, 1, 1, −1, −2. A difference sequence has one less term than the sequence from which it is derived.

**digit reduction**: the result of repeated digit summation until a single digit results. For example, the digit reduction of 1983 is 3. Also called additive digital root.

**digit sum**: the sum of the digits in a number. For example, the digit sum of 1983 is 21.

**digitizing**: converting an image to a grid plot in which the colors of the cells approximate the colors in the image.

**direct tie-up**: a tie-up in which treadle 1 is connected to shaft 1, treadle 2 to shaft 2, and so on.

**diversified weave**: in Oelsner’s terminology, a weave made by combining a pattern weave with a common ground weave, such as plain weave.

**divisor**: an integer that divides another evenly (without a remainder). For example, 3 and 5 divide 15.

**domain**: ?

**draft**: in loom-controlled weaving, a threading sequence, a treadling sequence, and a tie-up. Drafts sometimes are accompanied by drawdowns.

**draw**: t-sequence. See ascending straight draw and descending straight draw.

**drawdown**: a representation of the interlacement pattern of a loom-controlled weave, usually as a grid image with black cells where the warp is on top and white cells where the weft is on top. See also pixel drawdown.

**drawdown image**: pixel drawdown.

**domain**: ?

**duplicate removal**: removing all but one of adjacent duplicates in a sequence. For example, removing duplicates in 1, 1, 2, 2, 2, 3, 2, 1, 1 produces 1, 2, 3, 2, 1.

**e**: $e = ?$ is the base of “natural” logarithms. $e$ is a transcendental number.

**Egyptian fraction**: a fraction whose numerator is 1, as in $1/3$ and $1/5$.

**ellipses**: a symbol, ..., used to indicate a portion of something is omitted, as in
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1, 2, 3, 4, … . In general, it is assumed that the missing portion follows some pattern and can be figured out if necessary. The omitted portion may be finite or infinite.

**empty sequence**: a sequence containing no terms, written as [ ]. The empty sequence has length 0.

**empty set**: a set containing no members, written as { }. The empty set has size 0.

**empty string**: a string containing no characters, written as “ ”. The empty string has length 0.

**execution**: with respect to a procedure, performing the computation specified.

**factor**: a integer that evenly divides another integer. For example, 4 is a factor of 100.

**Farey fraction**: ?

**Farey fraction sequence**: ?

**Fibonacci sequence**: a sequence formed by the linear recurrence ... with initial values of 1 and 1.

**figurate sequence**: ?

**filter**: a procedure that deletes (filters out) values of a sequence with specified properties. An example is a procedure that filters out even numbers in an integer sequence.

**finite sequence**: a sequence with a limited number of terms. Contrast with infinite sequence.

**flat collation**: collation in which there is no offset to put terms from the two t-sequences in disjoint t-sets.

**flip**: ?

**float**: ?

**floating-point arithmetic**: arithmetic performed on floating-point numbers as an approximation to real arithmetic.

**floating-point number**: a computer representation used as an approximation for a real number. A floating-point number consists of an exponent and a mantissa.

**floor**: ?

**formal grammar**: ?

**formal system**: ?

**fractal**: ?
fractal sequence: ?

fraction: the ratio of two integers, as in 2/3. Also called a rational number.

fractional part: mantissa.

factorial: the product of the positive integers up to some value, $1 \times 2 \times \ldots \times n$. Denoted by $n!$.

Fibonacci sequence: the integer sequence produced by the recurrence $f(i) = f(i - 1) + f(i - 2)$ with initial values $f(1) = f(2) = 1$. Named after its discoverer, ?. The Fibonacci sequence is denoted by $F$ in this book.

formal grammar: a grammar for a formal language.

formal system: a system for manipulating objects according to fixed rules.

friendly sequence: an integer sequence in which successive terms differ in value by 1 or –1. An example is 1, 2, 3, 2, 3, 4, 5, 4, 5, 4, 5.

function: ?

Game of Life:

generation: with respect to sequences, the process of producing values in order one at a time; with respect to formal grammars, going from one string to another by applying the rewriting rules.

geometric sequence: ?

glyph: a visible mark that is used to represent a character. Examples are the letters, the digits, punctuation marks, and “special characters” such as ?. Some characters, such as the blank, do not have glyphs.

golden mean: ?

greatest common divisor: the largest integer that evenly divides all the terms in an integer sequence. For example, the greatest common divisor of $[10, 25]$ is 5. Abbreviated as gcd. See also least common multiple.

grid image: ?

grid plot: ?

ground weave: ?

hue: the essence of a color, such as red, green, and blue. The hue of pink is red. The term hue is used in different ways in different context and frequently is used incorrectly.

Icon programming language: a high-level computer programming language designed for computation with strings and structures. Icon was used for pro-
grams written in conjunction with this book.

**Incomplete sequence**: a t-sequence that is not a complete sequence.

**Index**: a sequence of positive integers whose values are used to select terms of another sequence by position. For example, the index sequence 3, 2, 1 applied to 1, 4, 9 produces 9, 4, 1.

**Indexed palette**: a palette in which values are specified by position.

**Infinite**: endless; the mathematical concept for things that are unlimited, such as the positive integers; not actually found in the real world.

**Infinite pattern**: a pattern of unlimited extent.

**Infinite sequence**: a sequence with an unlimited number of terms. An example is the positive integers.

**Infinitive sequence**: an integer sequence in which each different value occurs an infinite number of times.

**Inflection point**: the place in a connected run at which the direction changes. The first and last terms in a connected run are considered inflection points.

**Inflection sequence**: a t-sequence composed of inflection points.

**Initial values**: with respect to recurrences, values for the first few terms that are needed to start computing successive terms.

**Initial subsequence**: a subsequence that starts at the beginning of a sequence. For example, 1, 1, 3, 5 is an initial sequence of 1, 1, 3, 5, 8, 13, ...

**Initial substring**: a substring that starts at the beginning of a string. For example, “aba” is an initial substring of “abacadabra”.

**Integer**: whole number.

**Integer division**: division of integers in which remainders are discarded. For example, in integer division, $7/3 = 2$. Notation?

**Integer encoding**: ?

**Integer part**: ? For example the integer part of 2.73 is 2.

**Integer sequence**: a sequence of integers.

**Isomorphism**: ?

**Iteration**: repeating a computation over and over.

**Interlacement pattern**: ?
interlacing: *

interleaving: collation.

inverse: the opposite of. With respect to a drawdown, the result of changing all black cells to white and vice versa.

invertible operation: *

irrational number: a number that is not a rational number, that is, cannot be represented by the ratio of two integers. An example is \( \sqrt{2} \).

keyed palette: a palette in which characters identify color values.

L-System: a kind of formal grammar in which all rewriting rules are applied in parallel at each generation. Also Lindenmayer-System, after its inventor, Aristid Lindenmayer.

least common multiple: the smallest integer that is even divided by all integers in a sequence. For example, the least common multiple (lcm) of 2, 3, 5, 6 is 30. See also greatest common divisor.

length: with respect to a sequence, the number of terms in it; with respect to a string, the number of characters in it.

liftplan: *

linear recurrence: a recurrence, such as \( \), in which the expression involves only addition and subtraction. It usually is assumed that such recurrences also have constant coefficients, although there are recurrences, linear and otherwise, in which that is not the case.

live cell: in the Game of Life, a cell in state 1.

logarithm: *

logical values: “true” and “false”. Since there are only two logical values, they can be represented by binary digits, say 1 and 0, respectively.

Logo programming language:

loom-controlled weaving:

Lucas sequence: a generalization of the Fibonacci sequence in which the initial values are not 1 and 1. Named after Eduard Lucas, who first studied them.

mantissa: fractional part. For example, the mantissa of 2.73 is .73.

mapping: *

matrix: * See array.

meandering string: a string of minimum length that includes as substrings all
strings of a specified length from a specified set of characters. For example, ?.

**mediant:** the fraction whose numerator is the sum of the numerators of two other fractions and whose denominator is the sum of their denominators. For example, the mediant of 1/3 and 2/5 is 3/8. Note that this is not the same as the sum of the fractions.

**member:** a value in a set.

**modular arithmetic:** ?

**modular expansion:** ?

**modular reduction:** ?

**modular wheel:** a graphical device for representing modular arithmetic in which numbers are arranged in sequence around a circle.

**modulus:** ?

**monotone decreasing:** ?

**monotone increasing:** ?

**monotone non-decreasing:** ?

**monotone non-increasing:** ?

**monotonic:** ?

**Moore neighborhood:** ?

**Morse-Thue sequence:** ?

**motif:** with respect to patterns, a subpattern that, when repeated, produces the entire patterns; with respect to t-sequences, a (usually) short sequence that is used in several places. See also basic motif.

**motif along a path:** a t-sequence in which a short sequence, the motif, is replicated along a path.

**multivariate polynomial:** ?

**music drafting:** deriving a draft from music. Akin to code drafting.

**mutation:** an extension of the concept of permutation in which deletion and duplication of terms is allowed.

**n-ary sequence:** an integer sequence in which there are only n different values.

**name drafting:** code drafting.

**negative integer:** an integer that is less than 0, such as –5.
neighborhood: in a grid, specified cells adjacent to a given cell. There are different kinds of neighborhoods.

neighborhood template: with respect to pattern constraints, the pattern of black and white cells that are allowed.

nested recurrence: a recurrence in which the value of a term depends on the terms determined by the values of preceding terms, rather than just preceding terms themselves. An example is \( q(i) = q(i - q(i - 1)) + q(i - q(i - 2)) \).

nonnegative integer: 0 and the positive integers.

numerator: ?

operand: an argument for an operator. For example, in \( x + 3 \), \( x \) and 3 are operands.

operator: a symbol representing a function, such as + and –.

packet sequence: a sequence whose terms may be sequences. An example is \([1, 2, 3], [3, 2, 1, 2, 3]\).

Painter's weaving language: a programming language in the Painter computer application that provides a variety of ways of specifying t-sequences.

palette: a list of colors or color values. See also keyed palettes and indexed palettes.

palindrome: a sequence or string that reads the same way backwards and forwards. Examples are 1, 2, 4, 3, 5, 3, 4, 2, 1 and “abcddcba”. See also pattern palindrome.

palinform: a coined word for a sequence or string that has some palindromic properties but is not a true palindrome.

parameter: a value given to a procedure on which is used in its computation.

parity: the property of being odd or even.

parity rule: in cellular automata, a rule in which the next state of a cell depends on the parity of the sum of its neighboring cells.

parity adjustment: modifying a sequence so that it has a desired parity sequence.

parity sequence: a binary sequence derived from another sequence and whose values are 0 or 1 according to whether the values in the other sequence are even or odd, respectively. For example, the parity sequence of 1, 2, 3, 5, 4, 2 is 1, 0, 1, 1, 0, 0. A parity sequence can be obtained by modular reduction, mod 2, of the original sequence.

partition: like a composition, except that order matters. For example, in a partition, 1 + 3 is considered to be different from 3 + 1.
path: a sequence of locations in a matrix or grid.

pattern: in the context of weave interlacement, a drawdown.

pattern palindrome: a palindrome in which there is not a duplicated middle value. An example of a pattern palindromic sequence is 1, 2, 3, 4, 3, 2, 1. On the other hand, 1, 2, 3, 4, 4, 3, 2, 1 is not a pattern palindrome.

pattern sequence: in cellular automata, the patterns that occur in order as the transition rule is applied successively.

pattern weave: 

peg plan: liftplan. So named because of the construction of the mechanical device used.

period: the length of a repeat in sequence or string.

periodic sequence: a sequence composed of repeats of a finite sequence. An example is 1, 2, 4, 1, 2, 4, 1, 2, 4.

permutation: a rearrangement of the terms of a sequence or the characters in a string. For example, 1, 3, 2, 4 is a permutation of 1, 2, 3, 4. See also circular permutation.

Perrin sequence: 

personalized design: code drafting.

φ: . φ is a transcendental number.

phrase-structure grammar: a formal grammar in which ?

pixel: “picture element”, the tiny dot from which computer images are composed.

pixel drawdown: a drawdown in which grid lines are removed and the cells reduced in size to pixels.

π: the symbol for pi = 3.14159 … , the ratio of the circumference to the diameter of a circle. π is a transcendental number.

polygonal sequence: 

polynomial: 

point draw: a connected t-sequence consisting of the concatenation of up and down runs. An example is 1, 2, 3, 4, 3, 2, 1, 2, 3, 4, 5, 6.

position sequence: index sequence.

positional number system: ?
**positive integer**: an integer greater than 0, such as 5. The sequence of positive integers in numerical order is denoted by \( I \) in this book.

**power**: ?

**prepend**: to add a string to (concatenate onto) the beginning of another string. See also **append**.

**prime number**: an integer than has no other factors other than 1 and itself. Examples are 2, 3, 5, and 7. The only even prime is 2. The sequence of prime numbers in numerical order is denoted by \( P \) in this book. Compare to **composite number**.

**prime decomposition**: the representation of a positive integer as a product of primes raised to powers. An example is \( 300 = 2^2 \times 3 \times 5^2 \). Prime decomposition is unique up to the order of the terms.

**procedure**: See also **algorithm**.

**profile drafting**: ?

**programming language**: an language in which computer programs are written. Examples, are BASIC, C, FORTRAN, Icon, and Java.

**projection**: ?

**proper subsequence**: a subsequence that is not the entire sequence from which it is derived. For example, 1, 3, 2 is a proper subsequence of 1, 3, 2, 4.

**proper subset**: a subset that is not the entire set from which it is derived. For example, \{2, 3\} is a proper subset of \{1, 2, 3, 4\}.

**proper substring**: a substring that is not the entire string from which it is derived. For example, “bab” is a proper substring of “abab”.

**pseudocode**: computer instructions for an imaginary computer language that show the nature of a computation without all the details.

**pseudorandom number**: a number with the properties of a random number but produced by a procedure. Computers provide pseudorandom numbers but not true random numbers. Pseudorandom numbers are close enough in their properties to true random numbers to work satisfactorily in their place for most purposes.

**pseudorandom number generator**: a procedure that generates a sequence of pseudorandom numbers.

**pseudorandom sequence**: a sequence of pseudorandom numbers.

**quadratic irrational**: a real root of a second degree polynomial.
Glossary

quasi-periodic sequence: pseudoperiodic sequence.

quotient: ?

rabbit sequence: ?

radix: base.

radix conversion: converting a number from one base to another.

random number: a number whose value cannot be predicted or derived by any procedure. Random numbers occur in nature, as in the time of decay of a radioactive substance. Sometimes random number is used as an abbreviation for pseudorandom number.

random number generator: short for a procedure that generates a pseudorandom sequence.

random seed: a number that serves as a starting point for a pseudorandom number generator.

random sequence: a sequence of random numbers.

range: ?

rational number: fraction.

real arithmetic: arithmetic with real numbers. See also floating-point arithmetic.

real number: ?

rectilinear: composed of perpendicular straight horizontal and vertical lines.

recurrence: the definition of a sequence in which terms are defined in terms of preceding terms, as in ?. See also initial values.

recurrence relation: recurrence.

recursion: applying a recursive definition.

recursive definition: a definition in which a thing is defined in terms of itself, either directly or indirectly. For example, the rewriting rule a -> aba is a recursive definition.

reflection: flip.

relatively prime integers: integers with no common factor but 1. For example, 2, 7 and 17 are relatively prime.

remainder: ?

repeat: with respect to sequences, a subsequence from which an entire periodic sequence can be made by repetition. For example, the repeat for 1, 2, 4, 1, 2, 4, 1,
2, 4 ... is 1, 2, 4. With respect to patterns, a subpattern that when repeated produces the entire pattern.

**residue**: a sequence produced by modular reduction.

**residue sequence**: a sequence produced by modular reduction.

**reversal**: changing the order of a sequence or string from end to end. For example, the reversal of 1, 2, 3, 1, 2, 4 is 4, 2, 1, 3, 2, 1.

**rewriting system**: a formal system involving strings in which rules specify how characters are replaced by strings of other characters.

**RGB value**: a color specification in which a color is given in terms of the intensity of red, green, and blue light that produce it, as for a computer monitor. RGB values usually are given by comma-separated numerical values for the three colors, as in?

**root**: in the context of constraint sets, one for which there is a pattern. see also unsatisfiable.

**rotation**: with respect to patterns, revolving around the center. For patterns, only rotations in increments of $90^\circ$ are allowed. With respect to permutations, circular permutation.

**run**: a sequence of consecutive integers, that is integers that differ by 1, such as 1, 2, 3, 4, 5 and 6, 5, 4, 3.

**satin counter**:?

**satisfiable**: in the context of constraint sets, one for which there is a pattern. see also unsatisfiable.

**scaling**: with respect to t-sequences, multiplying terms by a constant.

**seed**: in cellular automata, a live cell in an array of dead ones; in L-Systems, the initial string, generation 0.

**self-generating sequence**:?

**self-repeating sequence**: an integer sequence in which every term is repeated according to its value. An example is 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, ... .

**self-similarity**:?

**selection**:?

**semiperiodic sequence**: quasi-periodic sequence.

**sequence**: an ordered collection of objects, called terms. The objects may be of any type, such as integers, drafts, and drawdowns. Sequences may contain duplicates. A sequence is shown explicitly by a comma-separated list of its terms, as in 1, 2, 3, 1. Because the terms in a sequence are ordered, 3, 1, 2, 1 is
different from 3, 2, 3, 1. When necessary to avoid ambiguities, a sequence also can be written with surrounding brackets, as in [1, 2, 3, 1]. See also empty sequence and subsequence. Compare to set.

**sequence template:** a way of describing a sequence by the form of its terms. Angular brackets are used to enclose sequence templates. An example is \(<i, i + 1>\), which, assuming \(i\) takes on values from the positive integers, describes the sequence 1, 2, 3, 4, 5, ….

**set:** an unordered collection of objects, called members. The objects may be of any type, such as integers, drafts, and drawdowns. Sets do not contain duplicates: Adding a member to a set that already contains the member does not change the set. A set is shown explicitly by braces surrounding a comma-separated list of its members, as in \(\{1, 2, 3\}\). Since there is no concept of order in a set, this set can be written \(\{3, 1, 2\}\), and so forth. Explicit sets usually are written with their values in order (if there is one) to make them easier to understand. See also empty set and subset. Compare to sequence.

**shaft arithmetic:** modular arithmetic for shafts and treadles where the smallest possible value is 1, not 0 as in ordinary modular arithmetic.

**sieve:**

**signature sequence:**

**size:** with respect to a set, the number of members in it.

**spectra sequence:**

**spider geometry:**

**stacked collation:**

**straight draw:** ascending or descending straight draw.

**string:** a sequence of characters. Since strings are composed of characters, separating commas are not needed; in fact, the comma is a character. A string can be written explicitly by enclosing it in quotation marks, as in “abacadae”. Since strings are sequences, the order of the characters matters: “abacadae” is different from “abacadea”.

**structure:** in programming languages, an aggregate of values, a value that contains collections of other values. Different kinds of structures organize values in different ways. Matrices, sequences, sets, and tables are structures.

**subpattern:** a pattern within (that is part of) a pattern.

**subscript:**

**subsequence:** a sequence within a sequence. For example, 1, 2, 1 is a subsequence
of 3, 2, 1, 2, 1, 3. See initial subsequence, proper subsequence, and final subsequence.

subset: a set composed of members of another set. For example, \{2, 3\} is a subset of \{1, 2, 3, 5\}. See proper subset.

substring: a string within a string. For example, “aba” is a substring of “cbabac”. See initial substring, proper substring, and final substring.

substitution map: a rewriting system that is a simple form of L-system.

symbol: a glyph that stands for something, such as the Greek letter π which used to represent pi. A symbol, however, need not have any meaning in and of itself.

symmetry: ?

t-number: a shaft or treadle number.

t-sequence: a threading or treadling sequence. T-sequences consist of positive integers and have bounds corresponding to the number of treadles or shafts used.

t-set: the set of values that occur in a t-sequence. For example, the t-set for 1, 2, 3, 5, 4, 2, 6, 8 is \{1, 2, 3, 4, 5, 6, 8\}.

table: a data structure in which ?.

term: in a sequence, one of its values; in a polynomial, ?

term repetition: repeating terms in a sequence.

term repetition function: a function that specifies how terms in a sequence are repeated to form a term repetition sequence.

term repetition sequence: a sequence in which terms are repeated.

text: strings.

text file: a computer file considered to be composed of characters. Text files are intended be read by human beings and some computer programs, such as editors. See also binary file.

thread-by-thread draft: a draft in which the threading sequence and treadling sequence correspond to threads in the corresponding weave. Contrast with profile draft.

threading sequence: a t-sequence that describes the order of shafts in threading.

tie-up: a matrix that shows which shafts are connected to which treadles.

totally satisfiable: a constraint set for which a pattern exists in which all constraints appear. Compare to satisfiable.

tour: a path that visits every location exactly once.
transcendental number: a real number that is not an algebraic number.

transposition: permutation.

treadled as drawn in: a draft in which the treadling sequence is the same as the threading sequence; weaving accordingly.

treadling sequence: a t-sequence that describes the order of treadles in weaving.

tromp as writ: treadled as drawn in.

truncation: deleting terms from the end of a sequence or characters from the end of a string.

turtle geometry: a navigational geometry in which a (conceptual) turtle moves according to commands such as “move forward” and “turn right”.

turtle graphics: pictures drawn by a (conceptual) turtle moving according to turtle geometry.

twill counter: ?

unbounded sequence: a sequence with no largest value, such as the sequence of positive integers.

undulant: ?

undulating sequence: ?

unit generator: basic motif.

unit sequence: a sequence with only one term, as in [5].

unsatisfiable: in the context of constraint sets, one for which no pattern exists. See also satisfiable.

variable: in mathematical contexts, an unspecified quantity that may take on different values. Variables usually are represented by letters at the end of the alphabet, such as x, y, and z.

versum sequence: an integer sequence in which the next term is produced by reversing the order of digits in the current term and adding the result to the current term. For example, if the current term is 506, the next term is 506 + 605 = 1111. Versum sequences are interesting because of the frequent palindromic numbers they produce.

von Neumann neighborhood: in cellular automata and other cell-based systems such as drawdowns, a 5-cell neighborhood consisting of a cell and the four cells to the east, south, west, and north of it.

voting rule: in cellular automata, ?
**whole number:** positive integer.

**WIF:** Weaving Information File. A *text file* format that contains information about a weave structure. WIFs are widely used for exchanging weaves between different persons and different weaving programs.