

Syntax

In linguistics, **syntax** (/ˈsɪntæks/^[1]^[2]) is the set of rules, principles, and processes that govern the structure of sentences (**sentence structure**) in a given language, usually including word order. The term *syntax* is also used to refer to the study of such principles and processes.^[3] The goal of many syntacticians is to discover the syntactic rules common to all languages.

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Etymology

The word *syntax* comes from Ancient Greek: σύνταξις "coordination", which consists of σύν *syn*, "together", and τάξις *táxis*, "an ordering".

Sequencing of subject, verb, and object

One basic description of a language's syntax is the sequence in which the subject (S), verb (V), and object (O) usually appear in sentences. Over 85% of languages usually place the subject first, either in the sequence SVO or the sequence SOV. The other possible sequences are VSO, VOS, OVS, and OSV, the last three of which are rare. In most generative theories of syntax, these surface differences arise from a more complex clausal phrase structure, and each order may be compatible with multiple derivations.

Early history

The *Aṣṭādhyāyī* of Pāṇini (c. 4th century BC in Ancient India), is often cited as an example of a premodern work that approaches the sophistication of a modern syntactic theory (as works on grammar were written long before modern syntax came about).^[4] In the West, the school of thought that came to be known as "traditional grammar" began with the work of Dionysius Thrax.

For centuries, a framework known as *grammaire générale* (first expounded in 1660 by Antoine Arnauld in a book of the same title) dominated work in syntax: as its basic premise the assumption that language is a direct reflection of thought processes and therefore there is a single, most natural way to express a thought.

However, in the 19th century, with the development of historical-comparative linguistics, linguists began to realize the sheer diversity of human language and to question fundamental assumptions about the relationship between language and logic. It became apparent that there was no such thing as the most natural way to express a thought, and therefore logic could no longer be relied upon as a basis for studying the structure of language.

The Port-Royal grammar modeled the study of syntax upon that of logic. (Indeed, large parts of the Port-Royal Logic were copied or adapted from the *Grammaire générale*.^[5]) Syntactic categories were identified with logical ones, and all sentences were analyzed in terms of "subject – copula – predicate". Initially, this view was adopted even by the early comparative linguists such as Franz Bopp.

The central role of syntax within theoretical linguistics became clear only in the 20th century, which could reasonably be called the "century of syntactic theory" as far as linguistics is concerned. (For a detailed and critical survey of the history of syntax in the last two centuries, see the monumental work by Giorgio Graffi (2001).^[6])

Theories

There are a number of theoretical approaches to the discipline of syntax. One school of thought, founded in the works of Derek Bickerton,^[7] sees syntax as a branch of biology, since it conceives of syntax as the study of linguistic knowledge as embodied in the human mind. Other linguists (e.g., Gerald Gazdar) take a more Platonic view, since they regard syntax to be the study of an abstract formal system.^[8] Yet others (e.g., Joseph Greenberg) consider syntax a taxonomical device to reach broad generalizations across languages.

Dependency grammar

Dependency grammar is an approach to sentence structure where syntactic units are arranged according to the dependency relation, as opposed to the constituency relation of phrase structure grammars. Dependencies are directed links between words. The (finite) verb is seen as the root of all clause structure and all the other words in the clause are either directly or indirectly dependent on this root. Some prominent dependency-based theories of syntax are:

- Recursive categorical syntax, or Algebraic syntax
- Functional generative description
- Meaning–text theory
- Operator grammar
- Word grammar

Lucien Tesnière (1893–1954) is widely seen as the father of modern dependency-based theories of syntax and grammar. He argued vehemently against the binary division of the clause into subject and predicate that is associated with the grammars of his day ($S \rightarrow NP VP$) and which remains at the core of most phrase structure grammars. In the place of this division, he positioned the verb as the root of all clause structure.^[9]

Categorial grammar

Categorial grammar is an approach that attributes the syntactic structure not to rules of grammar, but to the properties of the syntactic categories themselves. For example, rather than asserting that sentences are constructed by a rule that combines a noun phrase (NP) and a verb phrase (VP) (e.g., the phrase structure rule $S \rightarrow NP VP$), in categorial grammar, such principles are embedded in the category of the head word itself. So the syntactic category for an intransitive verb is a complex formula representing the fact that the verb acts as a function word requiring an NP as an input and produces a sentence level structure as an output. This complex category is notated as $(NP \backslash S)$ instead of V. $NP \backslash S$ is read as "a category that searches to the left (indicated by \backslash) for an NP (the element on the left) and outputs a sentence (the element on the right)." The category of transitive verb is defined as an element that requires two NPs (its subject and its direct object) to form a sentence. This is notated as $(NP / (NP \backslash S))$ which means "a category that searches to the right (indicated by $/$) for an NP (the object), and generates a function (equivalent to the VP) which is $(NP \backslash S)$, which in turn represents a function that searches to the left for an NP and produces a sentence."

Tree-adjoining grammar is a categorial grammar that adds in partial tree structures to the categories.

Stochastic/probabilistic grammars/network theories

Theoretical approaches to syntax that are based upon probability theory are known as stochastic grammars. One common implementation of such an approach makes use of a neural network or connectionism.

Functional grammars

Functional models of grammar study the form–function interaction by performing a structural and a functional analysis.

- Functional discourse grammar (Dik)
- Prague linguistic circle
- Role and reference grammar (RRG)
- Systemic functional grammar

Generative grammar

The hypothesis of generative grammar is that language is a biological structure. The difference between structural–functional and generative models is that, in generative grammar, the object is placed into the verb phrase. Generative grammar is meant to be used to describe all human language and to predict whether any given utterance in a hypothetical language would sound correct to a speaker of that language (versus constructions which no human language would use). This approach to language was pioneered by Noam Chomsky. Most generative theories (although not all of them) assume that syntax is based upon the constituent structure of sentences. Generative grammars are among the theories that focus primarily on the form of a sentence, rather than its communicative function.

Among the many generative theories of linguistics, the Chomskyan theories are:

- Transformational grammar (TG) (Original theory of generative syntax laid out by Chomsky in *Syntactic Structures* in 1957)^[10]
- Government and binding theory (GB) (revised theory in the tradition of TG developed mainly by Chomsky in the 1970s and 1980s)^[11]

- Minimalist program (MP) (a reworking of the theory out of the GB framework published by Chomsky in 1995)^[12]

Other theories that find their origin in the generative paradigm are:

- Arc pair grammar
- Generalized phrase structure grammar (GPSG; now largely out of date)
- Generative semantics (superseded by semantic syntax)^[13]
- Head-driven phrase structure grammar (HPSG)
- Lexical functional grammar (LFG)
- Nanosyntax
- Relational grammar (RG) (now largely out of date)
- Harmonic grammar (HG) (similar to the optimality theory of syntax)

Cognitive and usage-based grammars

The Cognitive Linguistics framework stems from generative grammar, but adheres to evolutionary rather than Chomskyan linguistics. Cognitive models often recognise the generative assumption that the object belongs to the verb phrase. Cognitive frameworks include:

- Cognitive grammar
- Construction grammar (CxG)
- Emergent grammar

See also

- List of language disorders
- List of syntactic phenomena
- Metasyntax
- Musical syntax
- Semiotics
- Syntactic category
- Syntax (academic journal)
- Syntax (programming languages)
- Usage

Syntactic terms

- | | |
|------------------------------|---|
| ▪ <u>Adjective</u> | ▪ <u>Antecedent-contained deletion</u> |
| ▪ <u>Adjective phrase</u> | ▪ <u>Appositive</u> |
| ▪ <u>Adjunct</u> | ▪ <u>Argument</u> |
| ▪ <u>Adpositional phrase</u> | ▪ <u>Article</u> |
| ▪ <u>Adverb</u> | ▪ <u>Aspect</u> |
| ▪ <u>Anaphora</u> | ▪ <u>Attributive adjective</u> and <u>predicative adjective</u> |
| ▪ <u>Answer ellipsis</u> | ▪ <u>Auxiliary verb</u> |
| ▪ <u>Antecedent</u> | ▪ <u>Binding</u> |

- Branching
- c-command
- Case
- Category
- Catena
- Clause
- Closed class word
- Comparative
- Complement
- Compound noun and adjective
- Conjugation
- Conjunction
- Constituent
- Coordination
- Coreference
- Crossover
- Dangling modifier
- Declension
- Dependency grammar
- Dependent marking
- Determiner
- Discontinuity
- Do-support
- Dual (form for two)
- Ellipsis
- Endocentric
- Exceptional case-marking
- Expletive
- Extraposition
- Finite verb
- Function word
- Gapping
- Gender
- Gerund
- Government
- Head
- Head marking
- Infinitive
- Inverse copular construction
- Inversion
- Lexical item
- m-command
- Measure word (classifier)
- Merge
- Modal particle
- Modal verb
- Modifier
- Mood
- Movement
- Movement paradox
- Nanosyntax
- Negative inversion
- Non-configurational language
- Non-finite verb
- Noun
- Noun ellipsis
- Noun phrase
- Number
- Object
- Open class word
- Parasitic gap
- Part of speech
- Particle
- Periphrasis
- Person
- Personal pronoun
- Pied-piping
- Phrasal verb
- Phrase
- Phrase structure grammar
- Plural
- Predicate
- Predicative expression
- Preposition and postposition
- Pronoun
- Pseudogapping
- Raising
- Relation (Grammatical relation)
- Restrictiveness
- Right node raising
- Sandhi
- Scrambling
- Selection
- Sentence
- Separable verb
- Shifting
- Singular
- Sluicing
- Small clause
- Stripping

- Subcategorization
- Subject
- Subject-auxiliary inversion
- Subject-verb inversion
- Subordination
- Superlative
- Tense
- Topicalization
- Tough movement
- Uninflected word
- V2 word order
- Valency
- Verb
- Verb phrase
- Verb phrase ellipsis
- Voice
- Wh-movement
- Word order
- X-bar theory

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- Brian Roark; Richard William Sproat (2007). *Computational approaches to morphology and syntax*. Oxford University Press. ISBN 978-0-19-927477-2. part II: Computational approaches to syntax.

External links

- The syntax of natural language: An online introduction using the Trees program (<http://www.ling.upenn.edu/~beatrice/syntax-textbook>) – Beatrice Santorini & Anthony Kroch, University of Pennsylvania, 2007

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