

AVG

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On the system of semasiological grammar

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1. Semasiological grammar

The following is intended as a contribution to the theory of grammar in that it proposes concepts by which phenomena which occur in the grammars of diverse languages may be grasped. It is also intended as a contribution to the theory of grammatical description in that it suggests ways of describing such phenomena in a systematic, insightful way.¹

Given a theory of grammatical structure as sketched in Bohnemeyer 1993, it becomes possible to develop a system of organization of a grammatical description from the semasiological point of view. In a first approach, a semasiological grammar is structure-based and oriented towards meaning. Elements and relations of grammatical structure are of a radically different nature than elements and relations of meaning. Consequently, each domain has a systematics proper and appropriate to it.

In what follows, terms will be defined only if their use as observed here is not assumed to be self-evident.

The overall approach in semasiology is holistic. This has two implications:

1. A semasiological description is organized according to the same schema of progression which underlies the present exposition. Thus, for each grammatical unit of §2, the categories (§3.2) into which it is articulated are identified. For each of the potentially complex categories (§§2.3 - 2.7), its internal syntagmatic structure is analyzed. First, a set of constructions according to the syntagmatic relations of §4.2 is enumerated. For each of these constructions, the nature and distribution of its elements is set forth. Finally, given a certain construction of elements of two categories, one of the categories may open up a grammatical (in particular morphological) paradigm of elements. Such paradigms are discussed as part of the description of the particular construction.

2. A full treatment of a syntactic category in a language generally involves both its outward and its inward syntagmatic relations. However, given the hierarchy of syntactic categories, if this were done for all syntactic categories in a complete grammar, it would lead to redundancy. The holistic approach has the consequence that only the internal syntagmatic structure of a given unit is part of the treatment of that unit. Any structural phenomena which concern the relation of a given element to its context are treated at the point where the including construction - the one which provides the context - is treated.

2. Grammatical units

A **grammatical unit** is a kind of linguistic sign defined by a certain degree of grammatical autonomy. The grammatical units are, in order of increasing autonomy: sub-morpheme, morpheme, stem, word, phrase, clause, sentence.

¹ The frame of reference presupposed here is the project 'Allgemein-vergleichende Grammatik' (AVG), 'General-comparative grammar'. Cf. e.g. Lehmann 1989. Thanks are due to Myung-Chul Koo, Vladimir Tourovski and Dietmar Zaefferer for comments on the first draft.

A **syntagm** is a grammatical unit consisting of at least one morpheme.² Each of the grammatical units which may be syntagms (may be internally complex) constitutes a grammatical level. Consequently, the **grammatical levels** are those of the stem, word, phrase, clause and sentence.

2.1. Submorpheme

Submorphemes (often called 'submorphemic units') are like morphemes, but run short of one of the criteria of the linguistic sign. There are essentially two kinds of submorphemes:

1. Let T be a syntagm consisting of the units $S_{1...n}$ such that the following holds:
 - All the S_i are (representations of) morphemes except for S_j ($1 \leq j \leq n$).
 - S_j is a phonemic substring³ of T which is not phonologically conditioned.
 - S_j has (a significans, but) no significatum.

Then S_j is a submorpheme.

2. Let M be a morpheme and let S_i be some phonemic substring of M. If S_i is conventionally associated with some component of the significatum of M, then S_i is a submorpheme.

The two kinds are commonly exemplified with "euphonic" buffer elements (e.g. the German compound juncture element or the second element in French *a-t-il*) and with sound symbolism, respectively.

2.2. Morpheme

A morpheme is a sign that does not consist of signs. Morphemes occur in variants, called **allomorphs**.

Two kinds of morphemes are distinguished. A **root** is the core of a stem. A root may be bound or free. An **affix** is a bound morpheme with grammatical content. An affix is either a prefix, a suffix, an infix or a circumfix. An **interfix** is an affix whose occurrence is conditioned by another affix which is adjacent on the side opposite to the root.

2.3. Stem

A stem is what remains from a word-form if at least the outermost layer of inflection (usually person/number inflection for verbs, case inflection for nouns) is subtracted. Stems may occur in variants such as **compound-parts** (a variant of a stem which is part of a compound) or in the **construct state** (a variant of a nominal stem which does not constitute an NP).

² The notion is, thus, some way in between the most general notion of syntagm, which would comprise any syntagmatically complex linguistic unit, and the narrow notion of syntagm used in some European traditions, which comprises syntactic units larger than a word.

³ It seems to be terminological issue whether suprasegmental submorphemes should be recognized.

2.4. Word

Word is here short for 'word-form'. A **word-form** is a syntagm which has a certain degree of autonomy, such that internal structural positions are fixed and the syntagm as a whole is syntagmatically variable to some degree. In fact, the word level can be characterized as the grammatical level at which syntagmatic cohesion binds more closely than government, i.e. the level at which there are operations of increase of relationality.^{4,5}

A **clitic** is a word which bears no lexical accent.⁶ The clearest cases of clitics form a construction by attachment (cf. §4.2.1).

2.5. Phrase

The phrase is defined, partly negatively, as a syntagm which consists of one or more words but which is not a clause. Each grammatical category at the phrase level has the same distribution as one of the word categories.

2.6. Clause

A clause is a syntagm which contains a predication. Traditionally, the difference between a clause and a sentence is made by two independent criteria:

1. A clause may be dependent, a sentence is independent, i.e. it is specified for illocutionary force.
2. A clause is simple, a sentence may be complex, i.e. it may consist of more than one clause.

Criterion 2 introduces a terminological heterogeneity into the hierarchy. Apart from the morpheme, which is simple by definition, the units of the higher levels may be complex in the sense that a unit may consist of more than one item of the same level. Thus, a stem may consist of more than one stem, and similarly for the word⁷ and phrase. We will therefore stipulate that clause and sentence are distinguished only by criterion 1, with the consequence that, against tradition, a clause may consist of more than one clause. The term 'atomic clause' for what traditionally is called a clause may be used if needed.

2.7. Sentence

A sentence is the smallest syntagm with an illocutionary force of its own.

⁴ Cf., e.g., German *x überfährt y* with *x fährt über y*, both "x rolls over y". If the rules of syntax were valid in the first example, *über* would govern *y*, as it does in the second example. However, the rules of syntax would also require that first a constituent *über y* be formed, before *über* can be combined with the verb it modifies. The phenomenon has also been known as the bracketing paradox.

⁵ The phonological word may remain out of consideration here, as it is no grammatical unit.

⁶ This is somehow to be combined with the observation that a clitic cannot have dependents.

⁷ Think of periphrastic word-forms and phrasal compounds.

3. Grammatical categories

3.1. Theoretical levels

At each of the grammatical levels, units fall into classes. A **grammatical class** is a class of units which have some grammatical property in common. A **grammatical category** is the intension of a grammatical class. At the word level, the grammatical categories are the parts of speech.

A **primary grammatical category** is a grammatical category such that its class comprises words with lexical meaning or higher-level grammatical units. (Parts of speech are, therefore, primary grammatical categories, and so are all syntactic categories.) A **secondary grammatical category** is a grammatical category such that its class comprises grammatical signs (cf. Lyons 1968). (Inflectional categories are, thus, secondary grammatical categories.) Grammatical signs are distinguished from signs with lexical meaning by the parameters of grammaticalization (cf. Lehmann 2002).

Certain conceptual categories recur in the shape of secondary grammatical categories in the languages of the world. Examples include the concepts of property, which manifests itself in the primary grammatical category of the adjective, the speech act participant, which manifests itself in the secondary grammatical category of person, and the time concept, which manifests itself in the secondary grammatical category of time. This gives occasion to the definition of **interlingual grammatical categories**.⁸ Like all grammatical categories, these are categories of signs; i.e., they have properties relating to the signifiants and to the significatum of the sign. The former in most cases reduce to the general condition that the conceptual category manifest itself as a primary or as a secondary grammatical category, respectively, in the language. In some cases, they also pertain to the degree of grammaticality along some scale of grammaticalization. The semantic properties consist of a semantic prototype for the category.⁹ In the case of tense, this will be time with respect to the speech act moment; in the case of the future, it will be future time with respect to the speech act moment. If a language has a secondary grammatical category of the required degree of grammaticality whose significatum is closer to the semantic prototype of some interlingual grammatical category than it is to anything else, it will be taken to be a manifestation of the interlingual category and will be called by the same name.¹⁰ Allative and dative, for instance, are interlingual grammatical categories. The difference between them is largely one of grammaticalization. A certain case in a given language will be subsumed under one or the other of these concepts by such functional and formal criteria as determine its degree of grammaticality in the system.

⁸ Terminological alternatives include 'universal grammatical category' and 'cross-linguistic grammatical category'.

⁹ This solution is proposed and elaborated to some extent in Croft 1991 and in reports of the project 'A framework for descriptive grammars' conducted by Bernard Comrie and William Croft.

¹⁰ I do not follow the convention of spelling interlingual categories with initial lower case and language-specific categories with initial upper case.

We thus have categorial concepts at the following theoretical levels:

theoretical level	category	example
universal	conceptual category	time preceding speech act moment
interlingual	interlingual grammatical category	past tense
language-specific	grammatical category	English past tense

The universal level of cognition and communication and the language-specific level of grammatical categories are found in the object domain of linguistics; the level of interlingual grammatical concepts is the level of the metalanguage of linguistics.

There are only a handful of primary grammatical categories, but dozens of secondary grammatical categories within any one language. Primary grammatical classes tend to be large, heterogeneous and open, secondary grammatical classes tend to be small, homogeneous and closed. Consequently, interlingual secondary grammatical categories, including even their members, are easily identified and even delimited by their semantic prototype, while interlingual primary grammatical categories remain semantically vague. However, since secondary grammatical categories arise by grammaticalization of subcategories of certain primary grammatical categories, there is a gradient transition between the two.

3.2. Grammatical categories in grammatical description

There are two kinds of grammatical properties by which a grammatical class may be defined. Let C and D be classes of units. Then it may be a property of C that each of its units includes a unit of D; or it may be a property of C that its units are distributed over contexts defined with reference to D. The first situation arises only if D is a necessary part of C, which means in practice that C is a primary grammatical category (often, a word class) and D a secondary grammatical category (often, a class of morphemes). The second situation is common for units at all levels.

According to this distinction, grammatical categories, including word categories, may be delimited, within a given language, by morphological or syntactic distributional properties (where the formal properties and relations forming the distribution are those treated in §4). For instance, in many languages including German, the verb may be defined as the category whose members may be morphologically specified for tense. From a methodological point of view, circularity would be the result if the aim were to define all the grammatical categories of a language by this definitional procedure. For instance, tense can then no longer be defined as a morphological category specified on verbs. Obviously, some grammatical categories must either be defined in an independent

way or be taken for granted. Since grammar always regulates more strictly secondary than primary grammatical categories, it is methodologically safer to use secondary grammatical categories in the definition of primary grammatical categories, than vice versa.

A linguistic description that makes use of AVG treats grammatical categories as follows:

1. At the heuristic level, both primary and secondary grammatical categories are recognized as such by their grammatical properties (as typical of a low and a high degree of grammaticalization, respectively). Each of them is taken to be a manifestation of some interlingual grammatical category on the basis of the resemblance of its significatum with the semantic properties of the interlingual category.
2. At the methodological level, secondary grammatical categories are delimited against each other by their distribution, where prototypical members of the primary grammatical categories may be used in the specification of contexts. Primary grammatical categories are delimited against each other by their distribution, where secondary grammatical categories may be used in the specification of contexts.

4. Syntagmatic structure

4.1. Basic concepts

A syntagm of a given grammatical level is **complex** if it is formed by more than one unit of that level; otherwise it is **simple**. Complexity in the sense assumed here includes a variety of possibilities, among them the presence of two (or more) units of the same level and also the following case: If a syntagm of a given level is of category C and consists of one unit which belongs to category $D \neq C$, it is complex (cf. §4.2.2.3.1). A binary construction may consist of two units with lexical meaning or of one unit with lexical and another with grammatical meaning. In the latter case, the grammatical element may be an operator or a relator in the construction. These cases are not differentiated at the level of the following sections dealing with different grammatical relations (but may be distinguished within each such section).

Operation O as applied to unit U of category C is **recursive** iff application of O to U does not change U's belonging to C. (This implies that O may be reapplied to U.)

Let S be a syntagm of category C consisting of syntagms T and U. S is **endocentric** iff the following holds:

- T is of category C.
- U is of category $D \neq C$.
- Extension of S by another item of category D is recursive.

In linguistic practice, few constructions (which are commonly considered as endocentric) satisfy the rigid criterion of recursive extendibility. It is assumed that in such cases semantic and stylistic restrictions override grammatical possibilities.

4.2. Relations in grammatical constructions

The grammatical relations treated here are conceived and defined as in Lehmann 1985. The following definitory statements provide operational criteria for their identification in a semasiological framework. As grammatical relations have a semantic side, which necessarily remains out of consideration here, the definitory conditions mentioned here may play the role of necessary or sufficient conditions in a full definition.

The order of the relations observed in the following exposition corresponds to a progression towards tighter construction. This progression has the following correlates:

- Constructions of the same level constituted by relations which are adjacent in this progression will exhibit similar formal properties (e.g. shape of operator, position of elements) within any given language.
- Conversion from the same level (§4.2.2.3.1.1) is dependency on a zero operator.
- Relations of sociation and dependency may be superimposed on each other within a given construction. Then the relation which creates a tighter construction (the one which comes later in the following enumeration) outweighs the other one. Examples are modification plus government, or predication plus government.

4.2.1. Non-grammatical relation: attachment

Let *S* be a syntagm of category *C* consisting of syntagms *T* and *U*. *T* is attached to *U* iff the following holds:

- *T* bears no grammatical relation to either *S* or *U*.
- *T* occupies a sequential position (s. §4.3.1.2) in *S*.
- *T* is optional in *S*.

Typical examples include clisis of *T* or movement of *T* by some process of functional sentence perspective.

4.2.2. Grammatical relations

4.2.2.1. Sociation

Sociation is not a unitary concept because it is a purely negative one. The basic idea is that of a grammatical construction whose members are equal, which means that it is based neither on dependency nor on attachment. It may be a logical property of a sociative construction *C* that each of its members denotes a (possibly improper) sub- or superset of the referent of *C*.

Let *S* be a syntagm of category *C* consisting of syntagms *T* and *U*. *T* and *U* are related by sociation iff they are related neither by attachment nor by dependency.

Typical examples include serial verb constructions.

4.2.2.1.1. Coordination

Let *S* be a syntagm of category *C*. The constituents of *S* are related by coordination iff the following holds:

- S consists of syntagms $T_{1...n}$, with $n \geq 2$.
- Each of the T_i ($1 \leq i \leq n$) either is of category C or of one other category $D \neq C$, where D is a grammatical formative.¹¹
- The number of items T of category D is \leq the number of items T of category C.
- Extension of S by another item of C and possibly D is recursive and does not change S's belonging to C.
- Each T_i has a different referent than S.

4.2.2.1.2. Apposition

Let S be a syntagm of category C consisting of syntagms T and U. T and U are related by (wide) apposition¹² iff the following holds:

- T and U are related by sociation.
- T and U each are of category C.
- T and U each have the same referent as S.

4.2.2.1.3. Predication

Let S be a syntagm of category C consisting of syntagms T and U. T and U are related by predication iff the following holds:

- T and U are related by sociation.
- T is of category NP.
- T is optional, U is obligatory.
- S is not extendable by other items of the categories of either T or U.

This relation will need to be analyzed in a given construction only if it is not overlain by a dependency relation between T and U.

4.2.2.2. Dependency

Let S be a syntagm of category C consisting of syntagms T and U. T and U are related by dependency iff the following holds:

- Not both T and U belong to C.
- Either T or U (or both) are relational in such a way that one fills the slot opened by the other.

4.2.2.2.1. Modification

Let S be a syntagm of category C consisting of syntagms T and U. T and U are related by modification iff the following holds:

- T and U are related by dependency, with U being relational in the way required for dependency.
- T is of category C.
- S is endocentric.

¹¹ The category difference between singular and plural NPs is not covered by this condition.

¹² Close apposition remains to be defined.

Typical examples include adjective attribution and modification of a verbal by an adverbial.

4.2.2.2.1.1. Recursive layering

Modifiers belong to different subclasses. It is to be stated whether modifiers of the same and of different subclasses can be stacked.

4.2.2.2.1.2. Headless construction

This will be treated as conversion from the same level (§4.2.2.3.1.1).

4.2.2.2.2. Government

Let *S* be a syntagm of category *C* consisting of syntagms *T* and *U*. *T* and *U* are related by government iff the following holds:

- *T* and *U* are related by dependency, with *T* being relational in the way required for dependency.
- Neither *T* nor *U* is of category *C*.
- Omission of *U* results in its latency (cf. Matthews 1981).
- Extension of *S* by another item of the category of *U* is impossible.
- *S* and *U*, but not *T* may be extended by modification.

Typical examples include the relation between a preposition and its complement and the relation between a verb and its direct object.

4.2.2.3. Unary construction

4.2.2.3.1. Conversion

4.2.2.3.1.1. Conversion from the same level

If a given unit belongs to two grammatical categories *C* and *D* \neq *C* of the same grammatical level, this may be a case of category indeterminacy or of conversion from *C* to *D*. The former is the default assumption. The latter obtains if the unit does not occur freely in *D*, but only in part of the contexts for *D*.

4.2.2.3.1.2. Rankshift

If a unit belongs to two grammatical categories *C* and *D* of grammatical levels *L* and *M*, where *M* is higher than *L*, and if the unit is complex at level *M*, then its belonging to *C* is brought about by (downward) rankshift (cf. Jespersen 1924, 1937).

Examples include nominalization and phrasal compounds.

4.2.2.3.2. Pronominalization

Pronominalization is the substitution of a syntagm by a grammatical element. As it bars internal grammatical complexity of such a syntagm, it constitutes the limiting case of the grammatical relations that may obtain in a syntagm.

Proforms are words and are therefore treated as pronominal subclasses of certain word classes. For categories of higher grammatical levels, the possibility of their representation by pronouns, i.e. pronominalization, will be stated at the relevant level.

4.3. Distribution

The distributional properties of a given unit U are its syntagmatic position and its obligatoriness. Since nothing occupies per se a certain position or is per se obligatory or optional, U's distributional properties can only be talked about with reference to the construction C of which U is an immediate constituent. According to the holistic approach mentioned in §1, U's distributional properties are discussed as part of the treatment of C, not that of U.

4.3.1. Position

Order of units is not determined by specifying the sequence in which a set of items occur. Instead, the position of any one unit is determined with respect to some structural reference point. Possible reference points are syntagms of a certain category with their boundaries. Let S, T and U be syntagms such that T is an immediate constituent of S and U is a proper part of S.



Then the position of T may be determined in either of the following ways:

1. as adjacent to U on either side (where S consists of T and U and there is a grammatical relation between T and U);
2. by counting units of a certain grammatical level from one of the boundaries of S or U (where the grammatical categories of the units do not matter).

In the first case, T occupies a **grammatical position** (with respect to U). In the second case, T occupies a **sequential position** (with respect to either S or U). In some cases the criteria mentioned in the definitions do not suffice to distinguish a sequential from a grammatical position.

A description of a structural position in a grammatical construction presupposes, with the exception noted in §4.3.1.2, a given grammatical relation. Therefore there is, within a construction, no variation of the position of an element according to its grammatical relation. However, the position may vary according to other factors such as weight of the element or its semantic relation.

4.3.1.1. Grammatical positions

A grammatical position must be adjacent to U. I.e. a position anywhere to the left (or to the right) of U is, in fact, a sequential position with unspecified numerical value.

Since grammatical constructions are binary, every grammatical position has exactly one reference point. A statement of the sort 'items A, B and C occur in this order' is to be amended, e.g. by recognizing that B and C form a syntagm S and then specifying the position of A with respect to S.

If the constituents of syntagm S are related by coordination, then the position of the coordinators is specified with respect to the coordinated items.

In dependency constructions, the position of the dependent item is, in principle, specified with respect to the controlling item, not vice versa. However, this leads to problems in the description of syntagms of the kind of Latin prepositional phrases such as *illo in tempore* 'at that time'. Possibly the principle must be modified to allow the position of the operator/relator to be specified with respect to the operand.

Whenever there are alternative positions for an item, the conditions for each of the positions are specified.

4.3.1.2. Sequential positions

The following sequential positions of T recur in the languages of the world:

- position immediately preceding U, where S is TU (e.g. the topic position),
- first position within S (e.g. the focus position),
- second position within S (e.g. Wackernagel's position),
- last position within S.

4.3.1.3. Grammatical and sequential position

As for the place in the description where the position of T is treated, the remarks made in §4.3 apply. For example, the position of the adjective attribute is treated not in the description of the adjective, but in the description of the nominal. This becomes especially relevant in the case of items T (usually clitics or displaced constituents) which occupy sequential positions within a larger syntagm S. S is described as a binary syntagm consisting of T and the rest, the two parts being related by attachment.

The lower the grammatical level, the more syntagmatic cohesion is achieved by sequential position, and the less is it achieved by grammatical relations. At the word level, sequential position outweighs grammatical relation (cf. §2.4). Although at least some grammatical relations may be analyzed at the word level by means of the criteria given in §4.2, this will often not matter, and sequential position may suffice to specify the internal structure of the word.

4.3.2. Obligatoriness

Let U be a unit of category C and let U be an immediate constituent of syntagm S. Obligatoriness (vs. optionality) of U is determined with reference to S.¹³ A distinction is

¹³ See Blume 1993 for details.

made between obligatoriness of a specific item and obligatoriness of (any item of) category C. If C includes an unmarked value whose significans is zero, this dispenses with an analysis of obligatoriness.

Obligatoriness of U may change if the syntagm which properly includes S is considered. This, however, is not a grammatical property of U.

4.4. Operators

An operator is a grammatical formative which forms a binary construction with another element, the operand. It may belong to one of the following types of structural device:

- Sign with segmental representation of its own. In this case, operand and operator may be units (categories) of the same or of the next lower grammatical level. In the latter case, in particular, the operator may be one of the affixes discussed in §2.2.
- Morphological modification [of the flexional type].
- Segmental phonological modification (including reduplication).
- Suprasegmental modification (including stress shift and tone change).

The lower the grammatical level, the more frequent will be the latter kinds of structural device.

5. Paradigmatic structure

If one of the grammatical categories involved in forming a grammatical construction is a secondary grammatical category, its units function as operators in the construction. The values of a secondary grammatical category form a paradigm. An analysis of the paradigmatic relations among its members is performed. While this is done, the construction as a whole and the operand in particular are kept constant in a schematic form. This allows systematic reference to the operand, as in §§5.2f.

5.1. Members of the paradigm

The elements of the grammatical class in question which are in opposition form the members of the paradigm.

5.2. Variation in members of the paradigm

A member of the paradigm may be represented by a set of variants, which may be in complementary distribution or in free variation. The conditions of a complementary distribution are stated with reference to subclasses of the operand.

5.3. Variations in the operand

Choice of different members of the paradigm may condition alternations in the operand.

6. Grammatical processes

To a certain extent, the operator-operand schema generalizes to binary constructions neither of whose members is a grammatical formative. On the basis of analogies to constructions of inflectional and derivational morphology, a certain nominal may be regarded as formed with an adjective attribute as an operator and a head nominal as an operand; and again a verbal may be regarded as consisting of the verb as an operator and a directly dependent NP as the operand. This has the following consequences:

- Subtypes of a syntactic construction, constituted by a given internal grammatical relation, are generated by varying the category and internal composition of one or both of its members. In this way, syntactic paradigms are formed.
- Items 5.1-5.3 may be treated for syntactic constructions, too. Grammatical processes could then be treated analogously to morphological processes. For instance, agreement of the adjective attribute with its head nominal would be an instance of §5.2, case government would be an instance of 5.2, agreement of the verb with its object would be an instance of 5.3. This analysis is applicable to the extent that the grammatical morphemes involved in such processes are automatic products of grammatical rules instead of having independent significance. To the extent that this is not so, such a grammatical morpheme constitutes a binary construction with its carrier and requires an analysis of its own.

References

- Blume, Kerstin 1993, *Valenz deutscher Verben und (Nicht-)Notwendigkeit*. Düsseldorf: Heinrich-Heine-Universität (Theorie des Lexikons. Arbeiten des SFB 282, Nr. 48).
- Bohnenmeyer, Jürgen 1993, "On the domain of semasiological grammar." Bielefeld: unpublished ms.
- Croft, William 1991, *Syntactic categories and grammatical relations. The cognitive organization of information*. Chicago: University of Chicago Press.
- Jespersen, Otto 1924, *The philosophy of grammar*. London: G. Allen & Unwin; New York: H. Holt & Co. 8. ed. 1958; 9. ed. New York: Mouton Library, 1965.
- Jespersen, Otto 1937, *Analytic syntax*. Copenhagen: E. Munksgaard. Reimpr.: New York etc.: Holt, Rinehart & Winston, 1969 (Transatlantic Series in Linguistics).
- Lehmann, Christian 2002, *Thoughts on grammaticalization*. 2nd ed.: Münster: e-learning academy.
- Lehmann, Christian 1989, "Language description and general comparative grammar." Graustein, Gottfried & Leitner, Gerhard (eds.), *Reference grammars and modern linguistic theory*. Tübingen: M. Niemeyer (Linguistische Arbeiten, 226); 133-162.
- Lyons, John 1968, *Introduction to theoretical linguistics*. Cambridge: University Press.
- Matthews, Peter H. 1981, *Syntax*. Cambridge etc.: Cambridge UP (Cambridge Textbooks in Linguistics).