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Introduction

Within linguistics there are various theories that describe syntax from a semantic point of view. To name a few: Lexical Functional Grammar (e.g. Bresnan 1982), Word Grammar (Hudson 1984), theories of Dependency Grammar, such as the work of Tesnière (1959) and the 'Meaning-Text' model of Mel'čuk (e.g. 1988), HPSG (Head-Driven Phrase Structure Grammar; e.g. Pollard and Sag 1994), strands of Generative Semantics (e.g. Seuren 1996), Dik's Functional Grammar (e.g. 1997; now Functional Discourse Grammar), strands of Cognitive Linguistics (see Croft and Cruse 2004) and various strands of Construction Grammar (see Hoffmann and Trousdale 2013). Besides these theories, there is also an older tradition of syntactic analysis within European Structuralism, which starts out from the idea of the Saussurian sign (form-meaning element) (de Saussure 1966). A notable example is the theory of *Semiotactics* developed by Carl Ebeling. This linguistic theory is based primarily on the work of Jespersen (in particular his *Analytic Syntax* of 1937) and on structuralist approaches to syntax (specifically the work of Jakobson and Martinet). The basic idea behind Semiotactics (in this name we find the Greek words *sēmeion* 'a sign' and *taktikós* 'fit for arranging') is that syntax concerns the relations between different form-meaning elements, and that these relations can be described with a limited set of syntactic relations, which are largely universal.

Ebeling explained his theory in various writings (including 'On the Semantic Structure of the Russian Sentence' 1954, *Syntax and Semantics* 1978, 'How Many Valences?' 1980, *Een inleiding tot de syntaxis* [An Introduction to Syntax] 1994 and *Semiotaxis* [Semiotactics] 2006). Most of these are of a rather technical nature or written in Dutch and therefore not accessible to a wider audience. Furthermore, the theory has been subject to ongoing development, and changes have been made in the practical application of the formalization (as well as the development in Ebeling's own works, culminating in his last book in 2006, see also e.g. the contributions of Kortlandt (1980, 2008) and Geerdink-Verkoren (2009), the various papers in Geerdink-Verkoren and van Engelenhoven (eds) 2011, and Fortuin 2014). In addition, there are many constructions in languages

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other than Dutch that have not yet been analysed using the semiotactic approach. The aim of this book is to fill this gap and present the first comprehensive introduction to Semiotactics. Although the universal semantic-syntax approach to language advocated here is based on various versions of Semiotactics as proposed by Carl Ebeling and other authors who have worked within this framework, we also offer own contributions to the semiotactic theory, which sometimes differ from the ideas put forward by Ebeling. To emphasize the broad typological scope and nature of the theory, we use the term *Universal Semantic Syntax* for the version of Semiotactics presented in this book.

Universal Semantic Syntax offers a truly semantic approach to syntax, taking as its primary starting point the idea that syntax deals with the relations between meanings and that the same types of relations can be found cross-linguistically. In indicating these relations, *Universal Semantic Syntax* abstracts from phrase structure, and focuses on the syntactic relations between the meanings of linguistic signs. As such, it differs from Chomskyan generative approaches to syntax and also from some functional approaches to syntax, such as the 'Meaning-Text' model of Igor Mel'čuk, which separate syntax from semantics and are primarily concerned with how words are arranged within a sentence. The theory presented in this book does not reject formal approaches to syntax, such as generative grammar, but rather presents another and perhaps complementary view on syntax. *Universal Semantic Syntax* is informed by various functionalist approaches to syntax, and is in some respects similar to syntactic theories, such as Construction Grammar. What makes it unique is that it provides a comprehensive way of both analysing and formalizing linguistic constructions across languages. At present there are few, if any, sign-based (form-meaning) theories of syntax that offer tools enabling us to take *any* fragment of the grammar of *any* language and to describe, analyse and formalize that fragment. Without such tools it is difficult to show the importance of the semantic approach to syntax. Therefore, *Universal Semantic Syntax* provides a genuinely unique approach to syntactic theory.

This book consists of two parts. In Part I we will discuss the theory, the formalization of the theory and our own views and contributions to the theory. In Part II the theory will be further illustrated by providing semantic-syntactic analyses and descriptions of numerous examples in English (many of them taken from Jespersen's *Analytic Syntax* and from The British National Corpus[1]) and various other languages, European and non-European.

[1] http://corpus.byu.edu/bnc.

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PART I The Semiotactic Theory

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1 *Basic Theoretical Principles*

Before discussing the more technical aspects of Semiotactics in this chapter, namely the way in which the model represents syntax, we will first outline its basic theoretical principles.

1.1 Form and Meaning

The communicative basis of language explains the existence of the phoneme and the linguistic sign. The most important principle in Semiotactics is the Saussurian principle that a **linguistic sign** consists of two inseparable components: a form component and a meaning component, which correlate. Although the basic principle is that one form correlates with one meaning (**one form – one meaning**), many forms correlate with several interrelated meanings (i.e. they are **polysemous**) or with different non-related meanings (i.e. they are **homonymous**). In the case of polysemy, an important contributory factor is metaphoric and metonymic meaning transfer. Metaphor is based on comparison and similarity from a particular perspective (see e.g. Bartsch 1998). To give an example, we can use the word *wolf* to refer to a person because he is an aggressive and dangerous male. In that case there is a similarity from the perspective of character and behaviour. Metonymy involves a relation of contiguity between two concepts, such as 'part-whole' (e.g. *redhead* to refer to the person), 'institution-locality' (e.g. *university* to refer to the building where the university is located), and so on. In many cases one form is associated with several interrelated meanings that do not have clear boundaries between them. This often makes it difficult to postulate general meanings that can be seen as necessary and sufficient conditions for the correct use of a particular form (see e.g. Fortuin 2000: 52–54). We will come back to the issue of polysemy and metaphor and metonymy at several points in this book, because it also has consequences for the semiotactic analysis.

Another principle within the theory of Semiotactics is that meanings can be described in terms of **distinctive** (or **inherent**) **features** and the combination of

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these features sets a meaning apart from other similar (oppositional) meanings. We should note that within the psychological literature it has been pointed out that some categories display a prototype structure. In such cases the meaning of a form cannot be defined in terms of necessary and sufficient conditions for the correct use of the form. Instead, similarity to the prototype of a category is sufficient for classification into the category if and only if similarity to the neighbouring (oppositional) prototypes is lower (see e.g. Rosch 1973 for the prototypical category of *bird*). Semiotactics does not a priori deny the existence of prototypical categories or other radial categories as proposed in cognitive linguistics but tries to define meanings in terms of necessary and sufficient conditions as much as possible (see also Fortuin 2000: 9–54 for a discussion).

Unlike formal semantic approaches and partly similar to cognitive linguistic approaches to semantics, Semiotactics does not describe meaning in terms of truth conditions. This view is reflected in two important features of the theory. First, there is a distinction between what is part of the **meaning** of a form (and therefore an inherent part of every use of the form) and what is part of the **interpretation** of a form used in a specific discourse context. Since the semantic-syntactic analysis deals with meanings and not with interpretations, a sentence such as *two men are carrying three tables* is analysed as having one complex meaning, even though it can have different interpretations depending on how the sentence is understood in the given speech context in which it occurs (two men together carrying three tables, or each of the two men carrying three tables, etc.). Semiotactics thus distinguishes semantics from **pragmatics**, despite the fact that the boundaries between these areas of linguistics are sometimes difficult to identify, as pointed out by Cognitive Linguistics frameworks, for example. Semiotactics is, however, primarily a semantic-syntactic theory.

Second, scenes that refer to the same entities but are conceptualized or 'construed' differently in language have different meanings (cf. Croft and Cruse 2004 within a Cognitive Linguistics framework, who discuss the notion of construal). To give an example, the passive voice and active voice in English are two different constructions with two different meanings. If we compare the following matching active and passive sentences, it is clear that in both (a) and (b) we find Peter and the book, both involved in a reading situation, but the meaning is different because of the passive or active construal (which, as we will explain later, is related to how the valences of the plurivalent verbal meaning are organized):

a) *Peter is reading the book.*
b) *The book is being read by Peter.*

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The difference and similarity between these sentences can also be explained with the notion of **appropriate** referents. This term is used for the set of things (including situations, properties, etc., as experienced (or experienceable) by humans) that possess all the features expressed by the meaning of a given linguistic form. To illustrate this with an example, each tree in the world can be seen as an appropriate referent of the word *tree* as long as the speakers of the language community agree on the inclusion of this object as a tree. In the same vein, each set of properties is an appropriate referent of *cosy* if they are the properties that we agree on as being cosy. This shows that language must be flexible enough to categorize different experiences into one intersubjectively shared meaning. At the same time, what makes language special is that we can classify one and the same experienced situation with different meanings. This was illustrated with the passive and active sentences given above, where the same experience (including Peter, a book and a reading situation) can be materialized differently in language. In this case we find two constructions containing the same meanings ('Peter', 'book' and 'read'), which each have the same appropriate referents but the way in which these meanings are combined in the construction differs. The existence of such different meanings does, however, already influence our experience of reality from the start. Furthermore, the existence of separate constructions with the verbs *rob* and *steal* means that every experience where something is taken away without the owner's permission will probably be experienced immediately as either a robbing situation or a stealing situation. This indicates that the two verbs (or constructions containing these verbs) are each associated with different appropriate referents.

The flexibility of language also becomes clear in the case of metaphor and metonymy. For example, we can refer to a large, furry cat as *bear*, since from a particular perspective (i.e. appearance, especially of the fur and the relative size) there is a similarity between a bear and the cat. Similarly, we can refer to a building as *university* (e.g. *the university was painted white*) because it houses the institution named *university*. In both cases the meaning remains the same, but there is a **derived referent** to which the word refers. With conventionalized metaphors this need not necessarily be the case, since the direct relation between the original meaning and its metaphorical use is less transparent or not transparent at all. To give an example, in the case of a *mouse* (used for the computer) we do not necessarily think about an actual mouse. In such cases it is better to treat 'animal mouse' and 'computer mouse' as two separate, unrelated meanings.

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1.2 The Basis of Syntax: Entities and Syntactic Relations

A language is a system where all elements are interrelated, and a complex meaning equals the constellation of its constituent meanings. That is, a meaning of a complex form can be completely and adequately described in terms of the meanings of the constituent forms and their interrelations. Semiotactics thus has a **compositional** approach to meaning, even though, as we will show, linguistic constructions may sometimes also display more or less idiomatic (i.e. non-compositional) features (as described in Construction Grammar, e.g. Fillmore, Kay and O'Connor 1988), and constructions may have a meaning of their own that influences the meanings of the individual parts (as described in Goldberg 1995). In this respect, Semiotactics is very akin to Construction Grammar. In our analyses we will also point out such instances of non-compositionality.

Syntax studies the relations between meanings in an utterance. Since in Semiotactics syntactic relations are inherently semantic, they are called **semiotactic**. The terms 'syntactic' and 'semiotactic' will therefore be used interchangeably here. In looking at syntax, the theory of Semiotactics focuses on two aspects:

a) the way in which an utterance expresses one or more entities
b) the type of semiotactic relation between the meanings (the theory proposes a limited set of such semiotactic relations)

1.2.1 Entities

An important feature of Semiotactics is that the syntactic theory should represent how linguistic utterances express relations between different entities. An **entity** is something that in principle is perceptible (directly or indirectly) to the senses or can be independently thought. It is real or only imagined and exists as a particular and discrete unit, considered apart from its properties. Entities are always linked to linguistic utterances (forms and their meaning). As such, the term 'entity' is a purely linguistic term.

The concept of an entity can be illustrated with some examples. First, in the sentence *John is walking* we can identify one entity, 'John', whereas in the sentence *John is reading a book* we can identify two entities, 'John' and 'book'. Also compare the phrases *red car* and *John's car*. In both cases the meaning 'car' is modified, but in the case of *red car* we find only one entity ('car') and a **property** ('red') of this entity, whereas in the case of *John's car* there are two entities – 'John' and 'car' – and one entity ('John') modifies the other ('car'). Even though the event associated with an entity (e.g. in *John is*

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walking) is not in itself an entity, there are cases where events can indeed be perceived as entities. Examples are the infinitive situations occurring as 'primaries' quoted by Jespersen, where an event is conceptualized as a 'thing' or rather as a 'situation', e.g. *to see is to believe*. Thus the term 'entity' is used with regard to both things and situations.

In Semiotactics the terms **convergence** and **divergence** are used to express whether meanings point to the same entity or not: if two meanings point to one entity they are called convergent (e.g. *red flower*), whereas if they do not point to the same entity they are called divergent (e.g. *John's car*); the flower is red but the car is not John. Another example is the phrase *very high trees*. In this phrase 'very' is divergent with respect to 'trees' because it does not modify 'trees', but rather modifies 'high'. In this case the **semantic immediate constituent** (for which we will use the common abbreviation IC) 'very high' taken together is convergent with 'trees'. This implies that if a language user communicates the idea of a very high tree, the resulting complex linguistic utterance *very high tree* consists of two semantic 'pieces': (i) 'tree', (ii) 'very high', the latter of which can be split again into two pieces (i) 'very' and (ii) 'high'.

1.2.2 Syntactic Relations

We now move on to the issue of the relations between meanings. Having a language enables us to conceptually split things that are not split in the world as we perceive it. To give an example, instead of having one word for the entity 'red flower', language enables us to conceptualize the entity 'flower' and its quality 'red' separately: *red flower*. In order to understand the phrase *red flower* we must know what the semantic-syntactic relation is between 'red' and 'flower'. In this case we understand that 'red' expresses a feature of the entity 'flower'. In terms of sets, if we think of the set of all possible flowers, we limit this set by selecting the subset of flowers that have the feature 'red'. This differs from the relation between 'flower' and 'one' in the phrase *one flower*. In this case 'one' does not express a feature of 'flower' but rather quantifies the number of 'flower'. We find an altogether different relation in *the flower is red*: a subject-predicate construction with a temporal dimension that is absent in *red flower*. In this construction 'red' does not modify 'flower' directly, but indirectly.

The theory of Semiotactics proposes that there is a limited set of syntactic, or rather semiotactic relations between meanings (an overview is given in this chapter and a list of the symbols in Appendix A). Note that many of these relations are identified in traditional grammars as well, and are also described

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in detail by other linguists, such as Otto Jespersen (1965[1924], 1984[1937]). Furthermore, as we will also show in this book, these relations are universal in the sense that they occur in various (non-related) languages in the world. This probably follows from several factors: the communicative basis of language (what people want to communicate across cultures); the principle of 'least effort' (Zipf 1949), which explains, for example, why in English we have adjectives and nouns, i.e. a relation of modification (as explained above for *red flower*); and our cognitive make-up. Examples of such universal relations are several relations of modification (such as limitation, gradation, compounding) and the subject-predicate relation (nexus).

It should be noted that in the syntactic representation of a particular construction not only the relations between the meanings of words are represented, but also the relations between all the **semantic particles** expressed in the construction. A semantic particle is the smallest meaning element that is expressed by form. To give an example, in the phrase *red flowers*, we find TWO words but THREE semantic particles: 'red', 'flower' and 'plural'. The semiotactic representation must not only indicate the relation between the meanings 'red' and 'flower', but also between 'plural' and 'flower'.

One could also take a difference stance towards syntax and assert that syntactic structure is almost entirely language-specific (e.g. Croft 2001) and that it is not possible to postulate universal syntactic relations. In the same vein, one could also argue that each construction has its own semantic-syntactic relations and that it is not possible to use the same semiotactic relation for syntactic relations in different types of constructions. However, Semiotactics tries to abstract from differences between various languages and constructions as much as possible and to give a representation with universal semiotactic relations that is informative but not overinformative. To illustrate this with an example, the relation between 'red' and 'cat' in *red cat* and the relation between 'cat' and 'in the tree' in *cat in the tree* are both analysed in terms of a relation of limitation (modification), even though in the first example we find a combination of an adjective and a noun, and in the second we find a combination of a noun and a prepositional phrase. Semantically, however, in both instances 'cat' is limited (modified).

At this point we must admit that this approach may entail that some instances of particular syntactic relations are more prototypical or easily identified than others. To give an example, a typical and univocal instance of the relation of stratification can be found in the case of quantitative expressions with numerals (e.g. *two men*), where the meaning expressed by the noun is stratified by the meaning expressed by the numeral. However, the same

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stratification relation is used to represent the relation between the situation as a whole (expressing the proposition expressed by the construction) and semantic particles that further specify this entire situation, such as 'present' or 'past' (as will be further discussed in Section 3.3). In such cases the relation of stratification is also present but less self-evident, and therefore needs more explanation. In the end, we argue that the universal syntactic relations we propose must be seen both as abstractions from similar syntactic relations in various constructions across languages and as theoretical constructs, which do not necessarily have a *psychologically real* status.

We would also like to make an observation about the universality of meanings expressed by semantic particles, such as 'definite', 'singular', 'exclamative', 'emphasis' and so forth. These meanings are used as convenient labels for linguists to talk about comparable phenomena across languages and across constructions. As such, they abstract away from differences in meaning that may exist between form-meaning elements in different languages (or even within one language). Put differently, it may very well be that a meaning like 'definite' as expressed by the English definite article *the* is different from the meaning of a form expressing definiteness in another language. In this sense, the theory of meaning that we propose can be seen as essentially structuralist, since it acknowledges that meanings must always be studied within the larger structure of oppositional meanings in which they occur. If we consider it necessary for the syntactic analysis, we will discuss these meanings in this book, but in other instances we will not provide semantic analyses of the meanings used in our metalanguage, for example in the case of semantic particles that indicate e.g. definite ('DEF') or exclamative ('EXCL') meanings. This is because our focus is primarily on the syntactic relations between meanings, and not on the semantic contribution of the individual meanings as such.

1.3 Language Structure and Syntactic Representation

Like other theories of language, Semiotactics provides a specific **formalization** for the meanings of language utterances. The formal language of Semiotactics is an artificial metalanguage, which shows the syntactic relations between meanings and the way constructions express different entities. As a general rule, the syntactic relations between meanings are indicated by various symbols on a horizontal line, whereas the different entities (including different valences) that are associated with the utterance are presented in vertical columns. The advantage of using these semiotactic representations is that it

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