

# Perspectives on Semantic Roles

*edited by*

*Silvia Luraghi and Heiko Narrog*

*John Benjamins Publishing Company*

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## Perspectives on Semantic Roles

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### **Volume 106**

Perspectives on Semantic Roles

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# Perspectives on semantic roles

## An introduction

Silvia Luraghi & Heiko Narrog

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### 1. Semantic roles

Introduced in the late 1960s by Gruber (1965) and Fillmore (1968, 1971), semantic roles (or 'thematic roles', 'deep cases', 'thematic relations', 'theta roles') have become as indispensable for linguistic analysis across theoretical frameworks as they are controversial in multiple respects, as argued among others by Newmeyer (2010). In general, semantic roles are taken to refer to the roles taken by participants in an event (see Kittilä, Västi & Ylikoski 2011:7). Thus, there is general consensus on the fact that in (1):

(1) *Mary cut the rope with a knife.*

Mary is the agent (i.e. the participant who brings about an event voluntarily), the rope is the patient (i.e. the participant which undergoes a change of state brought about by the agent), and the knife is the instrument (i.e. the participant used by the agent to bring about the event). This broad generally accepted definition constitutes a common ground for the papers in this volume.

Traditionally, research on semantic roles has centered on the following issues:

- i. Determining the number and the kind of semantic roles entailed by the argument structures of verbs and construction types, based on the assumption that they are not language-specific but form a cross-linguistically (or, universally) valid set;
- ii. Related to (i) are descriptive and methodological issues such as criteria for distinguishing semantic roles, and dealing with variation in the expression of semantic roles across languages and within one language;
- iii. The definition of particular semantic roles, for example through a close set of necessary and sufficient features (cf. e.g. Radden 1989), or as prototypical categories (cf. e.g. Nishimura 1993 or Schlesinger 1989);

- iv. Determining the level of linguistic description at which semantic roles apply, and their relationship to units of linguistic description at adjacent levels (e.g. Lehmann & Shin 2005);
- v. Determining the relationship of semantic roles to case, argument structure and grammatical relations (e.g. Bornkessel et al. 2006);
- vi. Related to (iv) and (v), the level of granularity at which semantic roles are identified: a coarse level implies the necessity to introduce proto-roles (Dowty 1991) or macro-roles (Foley & Van Valin 1984; Van Valin & LaPolla 1997), partly as an improvement to the interface with syntax (e.g. Kailuweit 2004);
- vii. Determining hierarchies between semantic roles with respect to certain syntactic operations (e.g. Blake 2004: 91–92; Primus 2006).

In contrast, the following two issues are more recent, and have been particularly motivated by grammaticalization research:

- viii. The synchronic and diachronic relationship between semantic roles; i.e. their semantic similarity and paths of extension from the expression of one semantic role to others;
- ix. The systematic representation of this relationship in so-called semantic maps.

To this we can add the following issue, which has not been particularly prominent in the literature about semantic roles, but which is highlighted in one of the contributions to this volume:

- x. The shift from semantically based case marker to syntactic case marker via constructional reanalysis.

In spite of the vast array of studies especially, or at least partially, devoted to semantic roles, no treatment has thus far appeared that gives a satisfactory answer to the issues raised by often conflicting views on the points listed above. For example, regarding granularity, mismatches at the syntax-semantics interface are sometimes dealt with by the proto-role approach referred to in (vi), but can also motivate the opposite approach, i.e. that of a verb-specific level of analysis, which individuates a number of predicate-dependent microroles (Levin & Rappaport Hovav 2005: 40–41). Such a fine-grained approach often misses important generalizations, and fails to consider the complex interplay of different factors involved in the linguistic encoding of events. As a consequence, verb-specific semantic roles are not especially enlightening if the goal is to understand the reasons for coding similarities, for polysemy, and for the diachronic extension of coding devices typical of a certain semantic role to others (cf. (ii) and (viii) above).



Indeed, approaches to semantic roles display such a wide variety because their proponents often have different interests in mind: in other words, they answer different questions, as they target different aspects of the linguistic encoding of events and event participants. This volume is particularly concerned with the semantic rather than syntactic aspects of semantic roles. The papers assembled here therefore deal with the semantic and diachronic issues (i), (ii), (iv), (viii), and (ix), with a particular focus on the issues (viii) and (ix) related to diachronic change, and to the representation of similarity and extension between semantic roles in semantic maps.

## 2. Encoding semantic roles

Semantic roles are encoded through a variety of morphosyntactic means cross-linguistically. Such morphosyntactic coding devices can be seen as exponents of semantic roles; consequently, it is important to clarify their status. In the first place, semantic roles can be encoded by morphological cases. In addition, semantic roles are frequently encoded by adpositions, or even by adpositions plus (possibly different) cases. In head-marking languages, semantic roles can be indicated by verb affixes, and some basic semantic roles are indicated by word order in inflectionally poor languages such as English. In the sentence *The nurse gave the mother the baby*, it is word order that indicates that the nurse is the agent, the mother is the recipient, and the baby is the theme. As papers in this volume do not discuss the encoding of semantic roles through verb affixes or word order, we will concentrate on the role of cases and adpositions in this section.

### 2.1 Case

The close connection between cases and semantic roles is highlighted by definitions of case such as the following: “an inflectional dimension of nouns that serves to code the noun phrase’s semantic role.” (Haspelmath 2002: 267). Not everybody would subscribe to this definition, unless it is somewhat enlarged to include the role of cases in the encoding of grammatical relations, such as subject and object, which are not univocally connected with semantic roles. In a language like English, a subject can be an agent, an experiencer, a patient, and so on depending on the type of predicate. In (2):

(2) *John loves Mary.*

for example, there is no agent. Still, in many case-marking languages the subject NP is coded in the nominative in the same way as the subject of action verbs.

Thus, a broader and more comprehensive definition of case that takes into account both its grammatical and its semantic function is the following: “an inflectional category of nouns that helps identify a NP’s grammatical relation and/or semantic role.” (Luraghi & Parodi 2010:69).

It is widely known and has been remarked by several scholars over time that in specific case systems there are cases that play a bigger role in the encoding of grammatical relations (so-called grammatical cases), while others play a bigger role in the encoding of semantic roles (so-called semantic or concrete cases, see Haspelmath 2009:508 and Luraghi & Parodi 2010:71 for this terminology). We discuss this distinction below, in Section 2.2.

Research on semantic roles, when connected with cases, can be seen as a modern development of such traditional studies as those devoted to case meaning by structuralists and even earlier by comparative linguists (see Luraghi 2008). Thus, studies such as Nikiforidou (1991) or Janda (1993), devoted to the “meaning” of single cases in a specific language or in a cross-linguistic perspective, investigate the semantic relations most frequently indicated by case endings. In work by scholars inspired by Cognitive Linguistics, case polysemy is described as structured according to the model of radial categories (Janda 1993:6). This model is especially useful when one needs to understand the relations among different meanings, and the way in which semantic extension operates.

Typological research when investigating the functions of cases cross-linguistically has also been confronted with the problem of polysemy and compatibility of meanings. By comparing similar instances of polysemy and semantic extension cross-linguistically, typologists have identified a network of relations among meanings, which can be represented on semantic maps. We will return to this important tool below in Section 3.

Before proceeding, however, it must be noted that not all papers in this collection approach the issue of semantic roles taking cases (or more in general grammatical forms) as their starting point: in particular, Michael Cysouw’s paper *Inducing semantic roles* takes the reverse approach, and induces semantic roles from the distribution of case-like affixes cross-linguistically. Domenico Niclot’s paper takes yet another approach, that is, rather than focus on a specific case form, it focuses on a range of constructions that utilize the case form. For more discussion on different perspectives and approaches in the volume see Section 4 below.

## 2.2 Semantic roles and structural case vs. lexical (inherent) case

As remarked in the preceding section, a distinction is often made between grammatical and semantic or concrete cases. This distinction reaches back to traditional studies on cases, and has been discussed thoroughly in such classical studies as

Kuryłowicz (1949, 1964). According to Kuryłowicz, cases such as the nominative and the accusative in Indo-European languages are grammatical, as they most often indicate grammatical relations (subject and direct object), regardless of semantic roles. On the other hand, cases such as the locative or the ablative are concrete, as they most often indicate semantic roles. More recently, this distinction has been referred to as a split between structural cases and lexical or inherent cases. With respect to semantic roles, this can be translated into the idea that some cases do not express semantic roles while others do. This idea has been further adapted and refined in formal frameworks, but it has also stimulated research on case in functional research, where the emphasis tends to be on the observation that even with “structural” or “grammatical” cases one can find a core of semantic motivation. Furthermore, the status of specific cases in specific languages as structural or lexical can be controversial. This is, for example, notoriously the case with the dative in Indo-European languages, as already discussed in Kuryłowicz (1949=1960: 146).

In this volume, no paper deals specifically with the distinction between structural and lexical case. Dahl’s paper deals with a semantically rich semantic role, the experiencer, which surprisingly is most commonly expressed as structural case (nominative or accusative) in the language under investigation, Early Vedic Sanskrit. In contrast, the “addressee of speech act”, if it is to be acknowledged as a semantic role, as argued for by Daniel, is less surprisingly marked by dative or a clearly Goal-related cases in Caucasian languages. Kittilä’s paper deals with semantically rich semantic roles that are expressed by locative (mostly Goal-related) cases, or even adpositions. Niclot’s paper as well targets typical ‘lexical’ or semantically rich case, namely datives of affectedness. Luraghi’s paper is mostly concerned with the lexical cases, especially the source role of locative cases for the expression of other, non-locative semantic roles. Narrog’s paper, like Luraghi’s, is primarily concerned with case polysemy, and the development and directionality of case polysemy, but it is probably the one paper in this collection whose contents most directly bears on the distinction between structural and lexical case. Specifically, he argues that those cases traditionally identified as “structural” or “grammatical”, namely nominative, accusative, absolutive and ergative, serve as unique endpoints in the historical change of morphological case expression. One could loosely speak of them as one of two final “dumps” in the development of case markers, the other being semantically highly abstract cases marking adverbial adjuncts. Interestingly, the one case that is most controversial with respect of its status of being structural or lexical, the dative, is in a pivot position at which cases either develop into core structural case, or into adverbial adjuncts (remarkably, however, Narrog writes about them in terms of semantic roles). Cysouw’s paper also has some direct relation on our understanding of the distinction between

structural and lexical case, namely by introducing a bottom-up approach to the analysis of semantic roles and case which makes no a priori distinction between different types of case or semantic roles. Cysouw's approach is equally able to deal with semantic roles and case whether they have been labeled as "grammatical" or as "lexical" and thus calls into question the theoretical distinction from a cross-linguistic empirical perspective.

### 2.3 Adpositions

Similar to cases, adpositions are also possible markers of semantic roles (cf. Kittilä, Västi & Ylikoski 2011: 3). This functional similarity is best exemplified in languages that have no morphological case: for example, in French the preposition *à* is readily comparable with the German dative case in sentences such as (3) and (4):

- (3) *Je donne le livre au père*  
 1SG.NOM give:PRS.1SG ART.M book(M) to.ART.M father(M)  
 'I give father the book.'
- (4) *Ich gebe dem Vater das Buch*  
 1SG.NOM give:PRS.1SG ART.DAT.M father(M) ART.ACC.N book(N)  
 (same meaning).

Both the preposition *à* in French and the German dative case indicate the semantic roles of recipient in these examples.

From the formal point of view, prepositions are different from cases as they are free, rather than bound morphemes. This difference does not seem to be relevant when we compare the function of a preposition such as French *à* with the function of the dative case in many other languages, in examples such as those just discussed. However, the role of adpositions in the encoding of semantic roles is somewhat wider than that of cases. In the first place, even in languages with a large case system, the number of cases is limited, while one can always find a certain continuum between adpositions and other lexical items (adverbs, nouns, verbs) that can at least occasionally be used as adpositions. Consider the Italian examples in (5) and (6):

- (5) *Vado dentro alla casa.*  
 (6) *Vado dentro casa.*

While in (5) the adverb *dentro* 'inside' is followed by the primary preposition *a*, which reveals the adverbial, rather than adpositional, nature of *dentro*, in (6) it functions as a preposition in its own right. Thus, we can see that there is some overlap between prepositions and adverbs in Italian. In general, we can view this

as varying degrees of grammaticalization. The primary preposition *a* cannot occur without a noun (*\*Vado a*), while the adverb *dentro* can (*Vado dentro*). But even this difference between primary and adverbial prepositions is not clearcut, as the primary preposition *su* 'on', 'over', 'up', can occur alone (*Vado su* 'I'm going up[stairs]'). Cases are even more grammaticalized than primary adpositions. While in Italian some adverbial prepositions can occur without a primary preposition, in a case marking language such as Finnish, cases occur on nouns even without adpositions, as in (7), but an adposition cannot occur without a case, as shown in (8):

- (7) *pallo vier-i laatikko-on*  
 ball roll-3SG.PST box-ILL  
 'The ball rolled into the box.'
- (8) *Mari laitto-i kirja-n laatiko-n sisälle/sisään*  
 Mary put-3SG.PST book-ACC box-GEN inside  
 'Maria put the book into/inside the box.'  
 (from Kittilä, this volume)

This is of course because cases are bound morphemes, and are more grammaticalized than adpositions.

We are not going to pursue further formal distinctions between cases and various types of adpositions here. Remarkably, however, the more or less grammaticalized nature of these morphemes has a bearing on the extent to which they encode semantic roles. In the first place, in case systems with a limited number of cases, the latter typically encode grammatical relations, such as subject and direct object, while semantic roles are encoded by case-marked nouns plus adpositions. German case marking is a case in point: in German not only are the nominative and the accusative case basically limited to encoding grammatical relations, but also the dative can encode semantic roles usually only to the extent that they are indicated by the verb. Thus, in example (4) the dative does in fact encode the role of Recipient, but this role is required for its third argument by the verb 'give'. The dative also has a usage not conditioned by the verbal valency (so-called 'free dative'), which is, however, basically limited to Beneficiary (or Malefactive; this usage is treated in Chapter 8 in this volume).

Another important difference between cases and adpositions is a consequence of the more polysemous nature of cases: adpositions are semantically more specific, hence more suitable for specifying special features of given roles. Thus, in a language with a generic locative case, for example, various types of location (inside, near, on the surface of an entity, etc.) can be specified by adpositions. In addition, cases often rely on lexical meaning to disambiguate possibly polysemy. It follows that cases most often indicate semantic roles when the entity involved has a high chance to take this role in an event. We will discuss this issue in the next section.

## 2.4 Semantic roles and lexical meaning

Consider a highly polysemous case such as the Latin ablative. This case can indicate Source (especially with toponyms and depending on inflectional class), Instrument, and Cause, among other roles. Consider now Examples (9)–(11):

- (9) *senex*                      *qui*                      *huc*    *Athenis*  
 old.man(M):NOM   REL.NOM.M   here   Athens:ABL  
*exsul*                      *venit*  
 exile(M):NOM   come:PF.3SG

'An old gentleman, who came here as an exile from Athens.' (Pl. *Rud.* 35)

- (10) *senex*                      *qui*                      *huc*    *curru*  
 old.man(M):NOM   REL.NOM.M   here   wagon:ABL  
*exsul*                      *venit*  
 exile(M):NOM   come:PF.3SG

'An old gentleman, who came here as an exile on a wagon.'

- (11) *senex*                      *qui*                      *huc*    *metu*  
 old.man(M):NOM   REL.NOM.M   here   fear:ABL  
*exsul*                      *venit*  
 exile(M):NOM   come:PF.3SG

'An old gentleman, who came here as an exile out of fear.'

Athens is a city, and it is highly expected that its involvement in an event is that of a landmark of spatial relations. Similarly, a vehicle is normally used as an instrument for motion, and an abstract entity such as fear is likely to function as a cause. Of course, one can imagine a situation in which something that is not a natural location functions as a landmark for spatial relations. However, as such a situation is less expected, it is usually encoded with 'heavier' morphological means, typically by means of adpositions, as in (12):

- (12) *isdem* ...              *qui*                      *nuntii*                      *ab*  
 same:ABL.PL   REL.NOM.PL   messenger:NOM.PL   from  
*Iccio*                      *venerant*  
 Iccius:ABL   come:PPF.3PL

'The same (persons) who had come as messengers from Iccius.'  
 (Caes. Gal. 2.7)

In (12), a man called Iccius functions as the landmark of the same spatial relation indicated by the ablative *Athenis* in (9). However, here we find a prepositional phrase with *ab* 'from', which makes this relation explicit. Nouns referring to participants whose involvement in a situation is highly expected require less marking

than other nouns. This fact has often been noted for toponyms (see e.g. Comrie 1986: 2–3; Luraghi 2003: 65–66 among many other). Typically, adpositions, though polysemous, are less polysemous than cases, so they can indicate semantic roles in a more specific manner (see Kittilä, Västi & Ylikoski 2011: 10). Concerning Example (12), it can still be added that human beings are highly unexpected as landmarks of spatial relations (see Luraghi 2011, Creissel & Mounole 2011, and Kittilä this volume), and often require extra marking, or differential marking (this is not the case in Latin, where *ab* indicates Source with all types of noun except, to a limited extent, toponyms).

Lexical meaning can also indicate that a certain noun refers to an entity which is likely to take a specific semantic role. This is often achieved through derivational morphology. Thus, nouns marked as agent nouns, or as toponyms or instrument nouns indicate referents that are more likely to occur as Agents, Locations, or Instruments in sentences. In very much the same way as cases and adpositions, derivational affixes may also be polysemous, and mark nouns for neighboring roles such as e.g. Instrument and Agent, as English *-er* in (13) and (14):

(13) *Paul is a writer.*

(14) *The printer is jammed.*

Polysemy of derivational affixes is discussed in Luján & Ruiz (this volume).

### 3. Semantic maps

Semantic maps constitute an increasingly popular method of representing the relationship between linguistic units, especially meanings and functions, in terms of similarity. They have become an elegant way to deal with the polyfunctionality of linguistic elements (affixes, clitics, auxiliaries, or whole constructions) that conveniently bypasses the often thorny issue of polysemy vs. homonymy, shedding light on both diachronic and synchronic patterns within and across languages. Since the introduction of semantic maps by Anderson (1982, 1986), and stimulated by Haspelmath (1997, 2003), especially in the past decade a rapidly growing body of linguistic phenomena has been systematically dealt with in terms of semantic maps (see for example the recent issue of *Linguistic Discovery* 8/1). Among them, the semantic roles covered by case morphology and adpositions have been one of the topics most commonly studied (e.g. Haspelmath 2003, Narrog & Ito 2007, Malchukov & Narrog 2009, and references therein). An often cited example of such a map is given in Figure 1, from Haspelmath (2003: 219).



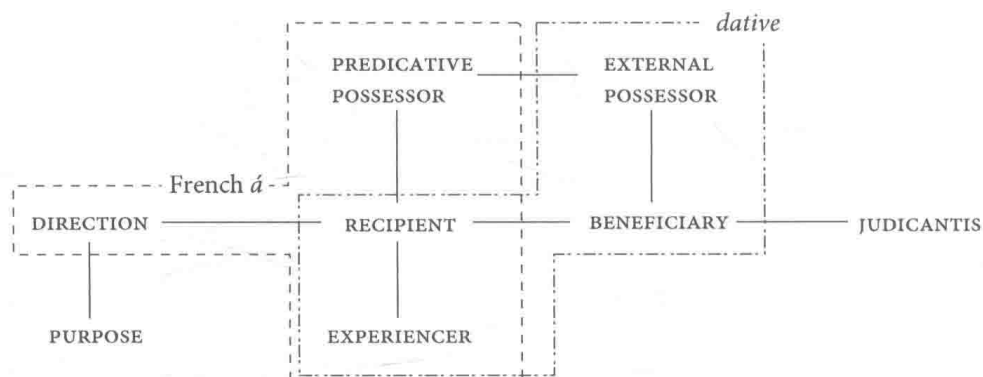


Figure 1. A semantic map of typical dative functions and the borders of French *à* and of French dative clitics

In the map in Figure 1, semantic roles are indicated by primitive meanings connected by lines. The position of such meanings with respect to each other is taken to represent universally valid relations among them. The meaning of a specific linguistic form (here the French preposition *à* and French dative clitics) covers the area indicated by the dotted lines.

Some classic historical-typological studies on synchronic and diachronic variation in the expression of semantic roles tried to indicate what are possible and impossible patterns of polysemy (see e.g. Croft 1991: 185; Heine et al. 1991: 159). More recently, various issues have been raised, connected with the structure of semantic space, and the best way to represent relations among semantic roles. Narrog (2010), for example, supports a model of semantic maps which include connections between items, in line with the original proposal in Haspelmath (1997, 2003). In such 'classical' semantic maps, lines between points usually do not cross each other (cf. Croft & Poole 2008: 22), and semantic space is represented as being bi-dimensional. Bi-dimensionality is an obvious consequence of graphic representation; however, according to Haspelmath (1997), keeping low the number of dimensions, and possibly also of connecting lines, is advantageous, as it increases predictive power of semantic maps. It turns out that, especially in the domain that concerns us here, that is, the relations among semantic roles, numerous predictions have been shown to be too strong (see Luraghi 2001 for a discussion of Croft's Causal Chain, proposed in Croft 1991). However, the opposite tendency can also raise problems, since by increasing the number of connections between points frequent and infrequent semantic extensions are put on the same plane, as pointed out by Lestrade (2010).

As an answer to the above issues, so-called 'second generation' semantic maps have been proposed, which rely on multi-dimensional scaling (MDS), and represent the distance among semantic roles based on statistical calculation



(see e.g. Cysouw 2010 and this volume). An example is given in Figure 2, from Wälchli (2010: 348).

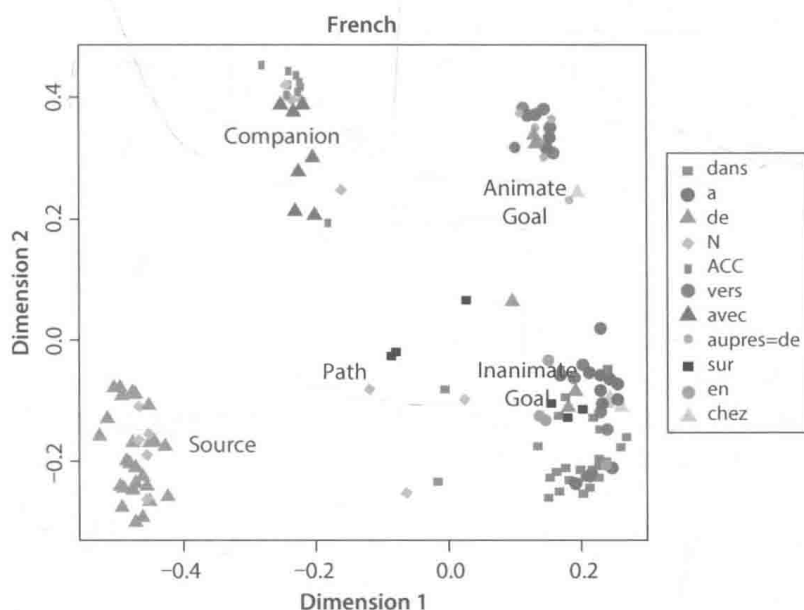


Figure 2. The meaning of french local prepositions in Mark's Gospel in a mds representation

As pointed out in Croft & Poole (2008:25), “multidimensional scaling as used in the social and behavioral sciences is mathematically well understood and computationally tractable”. As a consequence, arguably MDS has the advantage of avoiding unwarranted assumptions by linguists regarding the structure of semantic space. Indeed, they do not rely on meanings set up as primitives by linguists. Rather, they take formal coding as their point of departure (see further Cysouw, this volume). On the other hand, van den Auwera (2008) and Narrog (2010) point out that MDS cannot capture diachronic developments in the way that ‘classical’ semantic maps can do if connecting lines and arrows are drawn that are supported by data on attested developments.

Although semantic maps are certainly not designed in order to answer all the open questions raised by semantic roles, it is the claim of the present book that both the analytical decisions made when devising particular semantic maps and the patterns found within and across languages can help answer questions related to granularity, the motivation of polyfunctionality and diachronic change, and the role played by lexical, grammatical, and contextual elements of meaning. Neighboring semantic roles are most often taken by similar participants, similarity being reflected by lexical features, unless some other contextual factors intervene. For example, the occurrence of a predicate that requires a