Case, grammatical relations, and semantic roles

This chapter presents an overview of the basic issues concerning the relationship between cases, grammatical relations, and semantic roles such as agent and patient. Section 1 reviews general assumptions about this relationship. In most approaches, semantic roles are directly linked to abstract grammatical relations for the core arguments of the clause. Cases are considered to be a surface expression of grammatical relations. Accordingly, this article deals primarily with the relationship (or linking) between grammatical relations and semantic roles in different types of approaches (sections 2 – 4). The particular contribution of cases is mentioned at the end of section 3 and 4. Section 5 summarizes the main results of this overview.

1 Transparency principles

Approaches dealing with this topic incorporate principles that guarantee a transparent relationship between semantic roles and grammatical relations, but may differ with respect to how strictly they adhere to transparency. The strict principles in (1) – (2) characterize the framework of mainstream generative grammar:

(1) The Theta-Criterion: Each argument bears one and only one theta-role, and each theta-role is assigned to one and only one argument (Chomsky 1981: 36).

(2) The Uniformity of Theta-Assignment Hypothesis (UTAH): Identical thematic relationships between items are represented by identical deep structural relationships between those items (Baker 1988: 46).

Within functional-typological research, transparency is ensured by two violable general
functions of case marking, the distinguishing (or discriminatory) and the characterising function (e.g. Comrie 1981: 117-20, Dik 1997: 369-70, Song 2001: 156-67). In their distinguishing function, cases are used for discriminating concomitant constituents with different semantic or syntactic properties. This function is claimed to explain the fact that the subject of a one-place predicate is generally marked by the same case, the nominative or absolutive, irrespective of its semantic role. Ideally, a second case is only used with predicates selecting at least two roles, as in Japanese and Dyirbal, and a third case is only required by predicates with at least three roles.

The second broad function of cases is the characterising one. Ideally, a case has this function if it is used for all and only the noun phrases with a certain type of semantic role or syntactic function. The syntactic characterising function is a common assumption in traditional grammars. They define subject, direct object, and indirect object in terms of the nominative, accusative, and dative respectively (cf. Maling 2001 for arguments against this view). As to the semantic characterising function, argument realization is universally restricted by semantic roles within certain limits, as we shall see in the following sections.

Due to the characterising function, case selection may be more variable than predicted by the distinguishing function. Thus, for example, the case selected by one-place predicates may vary according to the semantic role of the argument (e.g. German mir war kalt ‘I (DAT) felt cold’ vs. ich arbeitete ‘I (NOM) worked’). But the variation induced by the characterising function is usually constrained by the distinguishing function. Let us consider the dative as the third case in addition to the nominative and accusative in Latin (cf. Dik 1997: 370) and German (cf. Primus 2006b). Very few one-place predicates select the dative instead of the nominative (less than 1%). The number of two-place predicates with a dative in addition to a nominative increases to ca. 7%, while the ratio of three-place verbs selecting a dative reaches ca. 70% and all these verbs also select an accusative and a nominative.

Transparency principles and functions presuppose more specific assumptions about
semantic roles and their linking to cases or grammatical relations. There are several views on semantic roles. In one view they are unanalyzable entities that are listed in the lexical representation of a predicate (cf. section 2). The other view is decompositional: a few general roles are defined in terms of basic notions such as causation, motion, or sentience (cf. section 3) or in terms of structural positions in the lexical representation of verbs (cf. section 4).

2 Grammatical relations, role lists, and role hierarchies

Many influential approaches use a list of informally defined semantic roles and a linking mechanism that is grounded on a role hierarchy. Fillmore’s Case Grammar (1968, 1977) is a pioneering work in this line of research. The semantic roles, ‘deep cases’ in his terminology, are characterized relative to the action or state of affair identified by the verb as follows (1968: 24-25): Agentive for the typically animate instigator; instrumental for the inanimate force or object causally involved; objective as the semantically most neutral role; dative for the typically animate being affected by the state or action; factitive for the object or being which results from the action or state. The list of deep cases, which also includes locative, is considered preliminary, but Fillmore is confident that they form a small set (1968: 5). This last assumption is needed in this kind of approach for the sake of one-to-one mapping principles.

The lexical entries of verbs indicate their selection of roles, as shown in (3). Parentheses indicate optional roles (1968: 27, 35):

(3) open: [__ objective (instrumental) (agentive)]

    show, give:[__ objective + dative + agentive]

The basic structure of sentences includes deep cases,⁵ which are linearly ordered as in the lexical entries of verbs. Surface structures, in which one deep case is realized as a syntactic
subject, are derived according to the following rule for the unmarked subject choice (1968: 35):

(4) If there is an agentive, it becomes the subject (cf. 5a,b); otherwise, if there is an instrumental, it becomes the subject (cf. 5c); otherwise the subject is the objective (cf. 5d).

In accordance with this rule, the verb open can be used in the following surface structures:

(5) a. John opened the door with a key.
    b. John opened the door.
    c. The key opened the door.
    d. The door opened.

In order to explain the role asymmetries needed for subject and object selection, many role-list approaches use a role hierarchy. The hierarchy that motivates Fillmore’s subject selection rule is (6):

(6) agent > instrumental > objective

This kind of treatment of semantic roles and linking characterizes many influential approaches including Dik’s Functional Grammar, Bresnan’s Lexical Functional Grammar, and Grimshaw’s approach within mainstream generative grammar. Their role hierarchies are shown in (7), (8), and (9) respectively:

(7) agent > goal (i.e. patient or theme in other approaches) > recipient > beneficiary >
instrument > location > time (Dik 1997: 37)

(8) agent > beneficiary > recipient / experiencer > ... > patient / theme > location (Bresnan 2001: 11)

(9) Agent (Experiencer (Goal / Source / Location (Theme)))

(Grimshaw 1990: 8)

In Functional Grammar and Lexical Functional Grammar, the role hierarchy is mapped onto abstract, non-structural syntactic functions. It is also used to determine the basic order of verbal arguments (e.g. Siewierska 1988, Dik 1997). Grimshaw uses a structured role hierarchy that is transparently projected onto structural syntactic functions if event-related factors such as change of state do not interfere.²

The logic of the subject selection principle in these approaches is the same as Fillmore’s in (4) above: if the verb selects the first role in the hierarchy (i.e. an agent), this role becomes the subject; otherwise, if the verb selects a second role in the hierarchy, this role becomes the subject, and so forth rightwards in the role hierarchy. Object selection is based on the same hierarchy and selects the patient or theme as the first choice.

Role lists are also used in mainstream generative grammar (cf. Chomsky 1981: 34-54, 1995: 30-33, 186-91; Baker 1988, 1997). Baker (1997: 120-21) proposes the following universal mapping principles that are meant to specify the UTAH in (2) above:

(10) a. An agent is the specifier of a higher VP.

b. A theme is the specifier of the lower VP.

c. A goal, path or location is the complement of the lower VP.
The structural analysis in (11) illustrates Baker’s assumptions (cf. section 4 for stacked VPs):

\[
(11) \quad \text{VP}[\text{John VP[the ring V'[passed to Mary]]}]
\]

Baker’s mapping principles in (10) are meant to eliminate a role hierarchy as a basic concept. They guarantee that agents are higher in the structural hierarchy than themes, and themes higher than goals, paths or locations, as shown in (11). An advantage of structural mapping principles is the specification of the absolute, i.e. exact structural position of an argument.

Let us summarize. Role lists are a convenient tool for preliminary role analyses and linking hypotheses. Their main weakness is that roles are not defined in terms of a limited, conceptually well-motivated set of semantic primitives. There are three negative consequences of this weakness. First, the number of individual roles exceeds by far the number of core syntactic functions, so that one-to-one transparency principles cannot be taken literally. Consider for example the alternative roles for one hierarchy slot or syntactic position in (8), (9) and (10) above. If one includes semantically underspecified predicates (cf. (12) and (13) below), the number of alternative roles for one position expands considerably. Role-list approaches are forced to claim that many alternative roles belong together in some way that is left unexplained.

This leads us to the second problem. Role lists cannot offer an understanding of whether two roles count as identical for linking or not. For the sake of transparency, such approaches underestimate role differences and this may lead to empirically inaccurate analyses. Let us consider Baker’s assumptions about ditransitive verbs. He collapses possessive and locative roles (cf. (10c) above) and derives the possessive construction (e.g. \textit{John passed Mary the ring}) by syntactic movement from the locative construction (cf. (11) above). However, approaches focusing on the meaning of such predicates have established that verbs such as \textit{pass} or \textit{give} have two readings: a possessive reading with a recipient (or abstract goal) and a
locative reading with a locative goal (cf. Wunderlich 1997, Krifka 2004, Levin and Rappaport Hovav 2005: 206-28). The two meanings are not equivalent, but related: the possessive construction entails the locative one. The entailment explains why a fairly large number of verbs occurs in both constructions, but the truth-conditional meaning differences cast a doubt on Baker’s assumption that they are mere suggestions (1997: 89).

The third problem of this kind of approach is that role lists are unstructured sets, so that additional stipulations in form of role hierarchies or mapping principles yielding role asymmetries are needed. However, these additional stipulations do not offer a substantive explanation for the attested asymmetries. As a result, role hierarchies and mapping asymmetries come in an unduly high number of variants, as shown above (cf. Levin and Rappaport Hovav 2005: 154-83, Primus 2006a). As we shall see in the following sections, there are decompositional semantic approaches that explain role asymmetries on semantic grounds and reduce the inventory of superordinate role concepts dramatically without neglecting finer distinctions.

3 Grammatical relations and proto-roles

In this section we will discuss Dowty’s (1991) work as a representative of a non-structural decompositional approach. Related influential approaches are Role and Reference Grammar (cf. Van Valin and LaPolla 1997, Van Valin, this volume) and the transitivity concept of Hopper and Thompson (1980, Kittilä, this volume). Dowty defines two superordinate proto-roles by a small set of semantic primitive properties (Dowty 1991: 571-2). The agent proto-role is characterized as follows:

(12) Agent proto-role:

a. x does a volitional act: *John refrains from smoking*.

b. x is sentient of or perceives another participant: *John knows / sees / fears Mary*. 
c. x causes an event or change of state in another participant: *His loneliness causes his unhappiness.*

d. x is moving: *Water filled the boat.*

e. x exists independently of the event named by the predicate: *John needs a car.*

Although most verbs select more than one proto-agent property for their subject argument (e.g. *murder, nominate, or give*), each of these properties can occur in isolation as shown by the subject argument in the examples in (12a) – (12e). The patient proto-role is defined and illustrated by the object argument of the examples in (13):

(13) Patient proto-role:

a. x undergoes a change of state: *John moved the rock.*

b. x is an incremental theme: *John filled the glass with water* (also stationary relative to other participants).  

c. x is causally affected by another participant: *Smoking causes cancer.*

d. x is stationary relative to another participant: *The bullet entered the target.*

e. x does not exist independently of the event, or not at all: *John needs a car/ seeks a unicorn.*

The list of properties in (12) and (13) is preliminary for Dowty: properties can be deleted or added without changing the logic of his approach. Candidates for deletion are stationary (cf. Primus 1999: 42-3) and incremental theme (cf. Levin and Rappaport Hovav 2005: 106-10). Additions include the target of sentience or emotion (cf. Pesetsky 1995), possessor (proto-agent) and possessed object (proto-patient) following, among others, Jackendoff (1990) and Wunderlich (1997). These changes lead to the following simpler and more consistent system (cf. Primus 1999, 2006a). The two proto-roles involve the same concepts in converse pairs:
volitionally acting or causing vs. volitionally or causally affected, moving (i.e. physically active) vs. moved (i.e. physically changed), sentient vs. target of sentience, possessor vs. possessed, independent vs. dependent existence.

The specific roles of role-list approaches can be defined in terms of proto-role properties: agents by volition and possibly more proto-agent properties; instruments and causers by causation without volition; experiencers by sentience without other properties. To sum up, decomposition allows for a high number of specific roles to be subsumed under a small set of general roles, thus combining differenciation with generalization in an elegant way.

Syntactic argument realization is assumed to be sensitive to the higher or lower number of semantic basic properties accumulated by an argument. Dowty’s argument selection principle is stated as follows (1991: 576):

(14) The argument for which the predicate entails the greatest number of proto-agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of proto-patient entailments will be lexicalized as the direct object.

The principle is meant to capture lexical default mappings for arguments with a high number of consistent properties such as selected by the verbs break and hit. Underspecified roles that accumulate a low number of consistent proto-role properties or none at all may have a variable realization, as will be shown later in this section.

Principle (14) holds only for accusative languages, which include most European and African languages. For ergative languages, such as Basque, the Caucasian languages, most Indo-Iranian, Australian, and Polynesian languages, the syntactic association is reversed: the argument with the greatest number of proto-agent properties bears the more marked ergative case; the argument having the greatest number of proto-patient entailments is in the least marked case, i.e. the absolutive or nominative (cf. Dowty 1991: 582). This account explains
the well-documented fact that the ergative-accusative distinction is most clear cut with transitive verbs that select a high number of consistent proto-role properties (e.g. Hopper and Thompson 1980, Primus 1999, Chap. 4, Malchukov 2005).

The accusative pattern is amply illustrated by the English examples in this chapter and can also be captured by the linking rules of role-list approaches (cf. (4) and (10) above). (15) shows the ergative case pattern in Samoan (Mosel 1987: 455):

(15) Sa fasi le tama e le fafine
    PAST hit DET boy ERG DET woman

    ‘The woman hit the boy.’

In the ergative construction, the agent is expressed by a more marked case, i.e. the ergative, while the patient is coded by the least marked case, i.e. the nominative or absolutive. The proto-role approach predicts that this construction is most consistently used with roles that accumulate a high number of consistent proto-role properties. Such roles are selected by verbs such as break and hit.

The typological ergative-accusative distinction is explained by the logic of Dowty’s argument selection mechanism, which yields a reversible role hierarchy (cf. Primus 1999, 2006a). In other words: agents and patients are on an equal footing if the high number of consistent properties is the main determinant of subject and object selection. Cf. the two inverse hierarchies in (16a,b), in which a role on the left is more accessible to the case in question than its follower to the right:

(16) a. Nominative or ergative: agent > experiencer / possessor > recipient-like roles > target of sentience / possessed object > patient
b. Accusative or absolutive: patient > possessed object / target of sentence > recipient-like roles > experiencer / possessor > agent

By contrast, role-list approaches do not offer an explanation for the inverse hierarchy in ergative languages. These approaches collapse the two hierarchies that are needed for subject and object selection and for the ergative-accusative distinction into one unidirectional hierarchy.

Intransitive predicates generally use the nominative or absolutive for all types of roles, as predicted by the distinguishing function of cases (cf. section 1). This function competes with Dowty’s principle, which can be viewed as a specification of the characterising function. It predicts role-driven case variation in intransitive clauses. This pattern, called active or split intransitive, is illustrated by the following Guarani examples (Gregores and Suárez 1967: 110):

(17) a. a-ma.apo
   1SG.A-work
   ‘I work.’

b. še-manuʔa
   1SG.P-remember
   ‘I remember.’

A- vs. P-markers are selected depending on the higher vs. lower number of agentive properties of the argument (cf. Primus 1999, Chap. 4). Nearly 100% of the volitional agents are coded by an A-marker. This marker is shown in (17a). 89% of the fully underspecified roles are indicated by a P-marker. This marker is illustrated in (17b). Fully underspecified
roles do not have agentive properties besides independent existence. They are selected by such verbs as *porã* ‘be beautiful, right’ and *marete* ‘be powerful, strong’.

A proto-role approach captures the well-attested fact that arguments with a small number of consistent role properties exhibit a variable realization cross-linguistically or within one language (cf. Malchukov 2005; the contributions in Aikhenvald et al. 2001; Bhaskararao and Subbarao 2004). The following Japanese example (Shibatani 2001: 319) and its English translation illustrate the coding variation for psychological predicates:

(18) Sensei ni eigo ga wakaru

> teacher DAT English NOM understands

‘The teacher understands English.’

In the Japanese example, the experiencer is expressed by the dative, while the target of sentience is in the nominative. In the English translation, the experiencer is in nominative subject position and the target in the accusative object position. This kind of variation is typical for non-causative psychological predicates such as *understand*, *love*, and *fear*, which select an experiencer and a target of sentience (cf. Pesetsky 1995, Levin and Rappaport Hovav 2005: 22-3). We limit the following discussion to this type of psychological predicates.

Their coding variation, while corroborating Dowty’s view, poses a problem for role-list approaches. The hierarchy agent > patient / target of sentience > experiencer leads to the cross-linguistically inaccurate assumption that targets of sentience surface as nominative subjects. This pattern is illustrated by the Japanese example in (18) above. However, its English translation refutes this linking assumption as a cross-linguistically valid generalization. The alternative hierarchy agent > experiencer > patient / target of sentience accounts for the subject experiencer of the English example (cf. Grimshaw 1990) but fails to capture the Japanese example. The most common solution to this problem is to introduce a
distinction between structural and lexical cases, to confine transparency principles to structural cases and to treat oblique experiencers as ‘quirky’ subjects bearing lexical, idiosyncratic cases.

However, this case distinction blurs a common structural property of experiencers with non-causative verbs that can be explained by their classification as proto-agents. Despite their variable case coding, they are always (or preferably) structural subjects, i.e. they occur sentence initially in terms of basic order as shown in the Japanese example. This structural function explains other syntactic subject properties of oblique experiencers in many languages (cf. the contributions in Verma and Mohanan 1991, Aikhenvald et al. 2001, Bhaskararao and Subbarao 2004 as well as Primus 2006a). In Japanese (cf. Shibatani 2001: 317-21), these subject properties include the selection of the subject honorific form and the antecedent function for the reflexive pronoun zibun.

The typological ergative vs. nominative variation in the coding of agents poses a similar problem: it exclusively favours case marking and case-related properties such as verb agreement. In both types of languages, agents show a strong tendency to be realized as structural subjects, e.g. to occur before patients in the basic order and to antecede reflexive pronouns (cf. Primus 1999, 2006a). As to this last property, no language has been found in which a proto-patient exclusively serves as an antecedent for a proto-agent.

In sum, proto-agents, e.g. agents and experiencers, show a strong tendency to be realized as structural subjects irrespective of the number of agentive properties they accumulate and irrespective of their case marking. Dowty’s approach explains case marking, which is sensitive to the degree of involvement of a participant, better than structural coding, which seems to ignore this semantic distinction. The next section will discuss structural decompositional approaches which offer a better tool for the structural generalizations missed by Dowty.
4 Grammatical relations and lexical semantic structures

In this section, we present Wunderlich’s (1997, 2006) Lexical Decomposition Grammar, which is based on Kiparsky (1987) and Bierwisch (1988). This choice is motivated by two aspects of this framework. First, it is purely structural. Second, it uses CAUSE and BECOME as basic operators, which are given an explicit truth-conditional interpretation by Dowty (1979) and are also found with minor modifications in many other approaches (e.g. Van Valin and Lapolla 1997, Van Valin, this volume, Levin and Rappaport Hovav 1995, Primus 1999, Culicover and Jackendoff 2005). We will focus on Wunderlich’s treatment of ditransitive verbs. Cf. (19):

(19) a. *Er gab ihr einen Apfel.*
   he gave her(DAT) an(ACC) apple(ACC)
   ‘He gave her an apple.’

b. *Er zeigte ihr den Dom.*
   he showed her(DAT) the(ACC) cathedral(ACC)
   ‘He showed her the cathedral.’

Wunderlich’s (1997: 38, 44) lexical representations of the verbs in (19) are shown in (20):

(20) a. \( \lambda z \lambda y \lambda x \ [\text{CAUSE}(x, \text{BECOME}(\text{POSS}(y,z)))] \)

b. \( \lambda z \lambda y \lambda x \ [\text{CAUSE}(x, \text{SEE}(y,z))] \)

Following Bierwisch (1988), Wunderlich splits the lexical representation of a predicate into two parts. The first part is the theta-structure; it contains the lambda-bound variables, which are associated with theta-roles. Only this part of the representation undergoes the linking
procedure. The second part contains semantic roles and their characterization in terms of primitive predicates such as \textsc{cause}, \textsc{become}, and \textsc{poss}. This part is related to the level of conceptual structure (in square brackets for convenience).

The relative prominence of theta-roles in the lambda-structure plays the crucial part in linking. The prominence hierarchy for the ditransitive verbs shown in (20a,b) is ‘x > y > z’. The structural dative has the most specific condition: it is linked to a role for which there is a higher role as well as a lower role [+hr, +lr]. Only role y satisfies both requirements. The structural accusative is linked to a role that is dominated by a higher role [+hr]. Two roles, y and z, are [+hr]. The competition between these roles is decided by a specificity condition: the dative, which is the most specific case matching both features of role y, is selected for this role. This leaves role z for the accusative. Role x is linked to the structural nominative, which is a default case lacking prominence restrictions.

To sum up, Wunderlich’s linking principles predict the following general patterns for structural cases: one-place verbs select a structural nominative, two and three-place verbs select a structural accusative for the lowest argument in addition to the nominative for the highest argument, and three-place verbs select a structural dative for the intermediary argument in addition to the nominative and accusative. These are indeed the default options in accusative languages (cf. Stiebels 2002 for ergative languages in this framework). Cases that do not conform to this structural pattern are assumed to be lexical, i.e. idiosyncratic cases. We will discuss them later in this section.

The abstract structural cases may be expressed according to Wunderlich by morphological cases, as in the German examples (19a,b), or by structural positions, as in English. (21) shows the corresponding structural positions for the three structural cases of the verb \textit{give} (cf. Wunderlich 1997: 39):

\begin{equation}
\text{VP}[\text{x cause VP}[y \text{ [poss z]]}]
\end{equation}
The stacked VPs, in which each theta-marking basic predicate is a verbal head in syntax, accommodate the assumption of the Minimalist Program that each thematic role is assigned by a specific verbal head within its maximal projection (cf. Chomsky 1995: 172). Thus, structural decompositional approaches offer a substantive semantic motivation for stacked VPs that is lacking in purely syntactic approaches (e.g. Larson 1988) and in role-list approaches (e.g. Baker 1997).

Wunderlich’s semantic view on structural cases contrasts with the assumption of mainstream generative grammar that structural cases are dissociated from theta-marking (cf. Chomsky’s 1981: 171). Closer to the spirit of the generative enterprise is Wunderlich’s assumption that structural cases are associated with theta-roles that are defined in purely structural terms. This structural approach is a good means to classify different specific roles by the relational features [+hr] and [±lr], a case at hand being [+hr, +lr] for recipients and addressees (cf. (19) and (20) above). However, the confinement to the structural relations of the lambda-structure leaves some facts unexplained (cf. also Butt 2006: 111-17).

One fact is the split intransitive pattern (cf. section 3 above). Recall that in Guarani, an agent regularly takes one type of marker, while a semantically underspecified argument regularly selects the other type of marker. This semantic generalization cannot be accounted for in a straightforward way in Wunderlich’s approach, because it regards the content of semantic roles and not their relative prominence in the lambda-structure.

Another fact that is left unexplained is the subject behaviour of oblique experiencers, which was mentioned with special reference to Japanese at the end of section 3. The theta-structure of a two-place psychological predicate such as understand or see is \( \lambda y \lambda x P(x,y) \) in many approaches, including Wunderlich’s. The corresponding prominence hierarchy is \( x > y \) with the experiencer as the highest role [-hr, +lr] and the target of sentience or cognition as the lowest role [+hr, -lr]. Wunderlich’s structural linking principles explain the nominative or
the initial basic position of the experiencer and the accusative or non-initial basic position of
the target, a pattern that is found in English and other languages for such verbs. In order to
capture an oblique experiencer, Wunderlich changes the prominence feature of the
experiencer from [-hr] to [+hr]. This step licenses a lexical case in his approach. As an
undesirable result, the structural information [-hr] is unavailable in syntax, although it is
needed in order to explain at least those subject properties of oblique experiencers that are
assumed to be structural in generative grammar. These properties include an initial basic
position and the antecedent function for subject-bound anaphors.

In more general terms, lexical cases turn out to be more systematic than assumed by
Wunderlich. Let us take a closer look at the semantic conditions for the dative in German (cf.
Primus 1999: 65-74). They are formulated in a decompositional framework in terms of
meaning components that are entailed or presupposed by the verb meaning. The first part of
the condition is structural: the dative can only be assigned to the highest role, i.e. the proto-
agent. The second qualification is non-structural: the participant in question is not the
volitional causer of the situation denoted by the verb.11 In accordance with these restrictions,
the dative in German is licensed for the first argument x of the predicate types listed in (22):

\begin{enumerate}
\item[(22)]
\begin{enumerate}
\item POSS(x,y), which is the relevant meaning component of verbs such as give (cf. (20a)
above) and gehören ‘own’, cf. mir gehört das Haus ‘I (DAT) own the house (NOM)’.
\item SENTIENCE(x,y), which subsumes emotion and cognition as the relevant meaning
component of verbs such as sagen ‘tell’, zeigen ‘show’ (cf. (20b) above), and gefallen
‘like’ cf. mir gefällt der Film ‘I (DAT) like the film (NOM)’.
\item Interactive predicates, which presuppose an activity or state in which the dative
argument is involved as the highest role. This presupposed meaning component is
mentioned after a semicolon in the translations, for convenience. Such verbs are helfen
‘help x; x is doing or planning to do something’, danken ‘thank x; x has done
something’, nachlaufen ‘run after x; x is also running’, zuwinken ‘wave to x; x perceives the waver’.

iv) Verbs whose nominative argument denotes an event the dative participant is involved in, e.g. mir gelang der Sprung ‘I (DAT) managed to jump’ and mir passierte ein Unfall ‘an accident happened to me’.

v) Symmetrical predicates such as ähneln and gleichen ‘resemble, be similar’. Note that SIMILAR(y,x) entails SIMILAR(x,y), so that x is the highest role in the entailed predicate.

All these datives are licensed by a common theta-structural property, but this property cannot be expressed in the lambda-structure of all the predicate-types listed in (22). A pertinent common behaviour of datives in German is that under further conditions, they turn into subjects in the dative-passive construction: ich (NOM) bekam Rosen (ACC) geschenkt lit. ‘I got roses given’. The dative-passive is not confined to the ditransitive verbs that license a structural case in Wunderlich’s framework. It is also used with some of the verbs that select a lexical dative according to Wunderlich, e.g. ich bekam geholfen / widersprochen lit. ‘I got helped / contradicted’.

5 Summary

All approaches that are concerned with the relationship between semantic roles and grammatical relations are able to capture the argument realization of transitive verbs selecting highly potent agents and strongly affected patients such as break, open, or hit in accusative languages. Approaches using role lists instead of semantic decompositions lack the means to cope with the large number of individual roles that are selected by the full range of verbs and with the reverse case pattern in ergative constructions. They also fail to offer a substantive explanation for basic questions pertaining to argument realization, such as: When do two or more roles count as identical for linking? Why are roles arrayed semantically or syntactically in a particular way?
Decompositional approaches fare much better. They explain role asymmetries on semantic grounds and reduce the inventory of general role concepts drastically without neglecting finer distinctions. Within this tradition, Wunderlich’s structural approach links structural cases or syntactic relations to prominence relations in the semantic structure of predicates. Arguments bearing the same prominence relation, such as recipients and addressees of ditransitive verbs, are predicted to be linked to the same structural case or syntactic relation. However, purely structural semantic approaches such as Wunderlich’s fail to incorporate finer distinctions of meaning that characterize the content of semantic roles and that are needed in order to explain a broader range of data.

The other kind of decompositional approach formulates generalizations in terms of semantic primitives such as volitionality, sentience, movement, and affectedness. Dowty’s approach was discussed as a representative of this line of research. In such approaches, the linking principles are sensitive to the higher or lower number of semantic basic properties accumulated by an argument, e.g. volitionality, movement, and sentience vs. sentience alone. Such principles are able to explain the basic facts pertaining to the ergative-accusative typology and to morphological split intransitivity as well as the case variation of semantically underspecified roles in a straightforward way. But generalizations that hold irrespective of the number and type of proto-role properties remain unexplained.

In sum, the different decompositional views supplement each other as they focus on different dimensions of role semantics. There is preliminary evidence suggesting that these different dimensions correlate with different means of expressing grammatical relations: Structural syntactic relations strongly correlate with structural role-semantic information, while case marking is particularly sensitive to the type and degree of involvement of a participant.

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**Footnotes**

1 Besides semantic roles and closely related event-structural notions such as change of state, there are other semantic factors that may determine the choice of grammatical relations. These factors include, among others, topic, animacy, (in)definiteness, and negation (e.g. Hopper and Thompson 1980, de Hoop 1996, Kittilä, this volume).

2 Similar principles are the Universal Alignment Hypothesis of Relational Grammar (Perlmutter and Postal 1984) and the Function-Argument-Biuniqueness Condition of Lexical Functional Grammar (cf. Butt 2005: 128). See Jackendoff (1990), Dowty (1991), and Culicover and Jackendoff (2005) for arguments against such strict one-to-one mapping assumptions.

3 In the Minimalist Program (cf. Chomsky 1995, Chap. 4), the Theta-Criterion is derived from the principles that constrain feature checking.
Later, Baker (1997: 104) is more cautious. He refers to similar thematic roles in similar initial structural relations and to Dowty’s (1991) approach (cf. section 3 below) without adopting it in a strict sense.

Some recent approaches also view semantic roles as syntactic notions (e.g. Hale and Keyser 1992 and most contributions in Erteschik-Shir and Rapoport 2005). Arguments against this view are presented in Butt (2005: 31, 49-51).

Parsons’ Neo-Davidsonian approach (1990, 1995) also uses a role list. Davidson (1967) and Parsons are concerned with the proper representation of events. A sentence like *Brutus stabbed Caesar in the agora* designates an event and entails the following: *There was a stabbing; The stabbing was by Brutus; The stabbing was of Caesar; The stabbing was in the agora.* In order to account for such entailments Parsons represents semantic roles as relations between events and things (or individuals) and connects the event components by logical conjunction. Cf. (a), where each conjunct represents the above-mentioned entailments of *Brutus stabbed Caesar in the agora* (cf. Parsons 1995: 636):

(a) $(\exists e)[\text{Stabbing}(e) \& \text{Agent}(e, \text{Brutus}) \& \text{Theme}(e, \text{Caesar}) \& \text{InLocation}(e, \text{the agora})]$

As Parsons admits (1995: 639-40), his treatment does not offer any substantive information on semantic roles and argument realization. Nevertheless, Neo-Davidsonian representations are still used, particularly by those concerned with event structure and its grammatical consequences (e.g. Krifka 1989, 2004, Engelberg 2000).

Event-related factors are introduced for causative-inchoative psychological verbs such as *frighten* and *please* (Grimshaw 1990, Chap. 2).

Incremental theme is an event-related role introduced by Krifka (1989) for a participant whose degree of affectedness parallels the degree of completeness of the event. Incremental affectedness does not imply a physical change of state, cf. *read a book* and *memorize a poem*. Conversely, not every change of state or location is incremental, cf. *push a cart.*
Overviews are offered by Dowty (1979, Chap. 2) and Levin and Rappaport Hovav (2005: 69-7).

Lambda operators are a formal means to represent the free arguments of a predicate. The order of the variables of a multi-place predicate is reversed in the lambda-structure in order to guarantee the appropriate argument composition in syntax. The lambda-bound event (or situation) variable $s$ in Wunderlich’s representations is omitted for convenience as it is not pertinent to our discussion.

This condition is necessary, but not sufficient: not all roles of this type occur in the dative, but except for a few verbs such as *entspringen* ‘come from, originate’, all dative verbal arguments satisfy this condition.