

Aspect and Noun Phrase Semantics in German and Finnish

6.1 Introduction

German and Finnish provide another piece of evidence for the claim that the incremental eventuality type represents one of the cross-linguistic (and perhaps universal) schemata that underlies the interaction of verbal predicates and noun phrases in the domain of aspect in typologically unrelated languages.

The German and Finnish data examined here manifest clear parallels between the denotational domains of nominal and verbal predicates and the interactions between the two, which can be best motivated in terms of the ‘object-event’ homomorphic mappings (see also Krifka, 1986, 1989). The observation that various totality and partitive operations in the denotational domains of noun phrases interact with verbal predicates and as a result have the effect of functions posited for the interpretation of perfective and imperfective aspect can be seen in connection with other independently described transpositions from space to time, such as those described in chapter 2 and chapter 3.

6.2 Aspect in German

The partitive *an*-construction in German stands in a systematic opposition to the corresponding construction with an accusative direct object, as is illustrated in (1):

- (1) a. Alex baute ein Haus.
Alex built a.SG.ACC house
‘Alex built a house.’
- b. Alex baute **an** einem Haus.
Alex built **on.PREP** a.SG.DAT house
‘Alex was building a house.’

Both the predicates in (1a) and (1b) take an Agent and an Incremental Theme argument. The Incremental Theme argument is realized as a

direct object in the accusative case in (1a) and as a prepositional phrase with the preposition *an*, whose basic meaning is locative ‘on’ or ‘at’, and a noun phrase in the dative case in (1b). (1b) with the partitive *an* denotes an event that is a proper part of the event denoted by (1a) with the accusative case. A felicitous utterance of (1b) presupposes that the construction of a house was not completed at some relevant contextually specified reference point and the utterance does not commit the speaker to any particular outcome of the event at a later point. (1a) with the accusative object differs from (1b) in that the referent of the Incremental Theme argument tends to be interpreted as being completely subjected to the event. However, this is merely a conversational implicature and can be cancelled without contradiction:

- (2) Alex baute ein Haus,
 Alex built a.SG.ACC house
 ‘Alex built a house,
 aber er hat es noch nicht fertiggebaut.
 but he has.AUX it still NEG complete.built
 but he has not yet finished building it.’

The *an*-construction is a highly marked form: it is used to indicate that the denoted event is incomplete. It is more restricted in meaning than the corresponding accusative construction. Since the latter construction has a less specific interpretation, it can be used to denote completed or incomplete events, it has a wider range of uses than the partitive *an*-construction. It can often substitute for the marked partitive *an*-construction. For example, this is the case in present tense sentences with a temporal adverbial, such as ‘right now’, which enforces the incomplete event reading, as is shown in (3):

- (3) a. Alex baut gerade ein Haus.
 Alex builds right.now a.SG.ACC house
 ‘Alex is building a house right now¹.
 (3) b. Alex baut gerade an einem Haus.
 Alex builds right.now on a.SG.DAT house
 ‘Alex is building a house right now.’

The German construction with the partitive preposition *an* (lit.: ‘on’, ‘at’) is an illustration of a frequent cross-linguistic strategy to

exploit various adverbial phrases with an originally locative origin for the expression of functions that are typically expressed by imperfective verb forms or function morphemes to map eventualities into their parts. As Comrie (1976:98ff., 103) observes, transpositions from space to time underlying various extensions of locative expressions to the expression of imperfectivity (and progressivity) are common across languages: cp. *on the table* and *on Friday*, *to be in the room* and *to be in the process of doing something*. In so far as the German *an*-construction is the marked member in the accusative-partitive opposition and serves to convey incomplete events, it is comparable to the English progressive construction. The German partitive *an*-construction is also similar to the English progressive construction in that it cannot be combined with a time-span adverbial, such as ‘in two years’:

- (4) a. Alex baute das Haus ?zwei Jahre lang / in zwei Jahren.
 Alex built the house ?two years long / in two years
 ‘Alex was building a house (?)for two years.’
- b. Alex baute zwei Jahre lang / (*)in zwei Jahren an einem Haus.
 Alex built two years long / (*)in two years on a house
 ‘Alex was building a house for two years /(*) in two years.’

‘(*)’ indicates that (4b) is acceptable if it has an inchoative interpretation: the building of a house started after two years from some contextually specified time-point.

Both the German *an*-construction and the English progressive construction differ from the Slavic imperfective aspect in so far as they cannot be used to denote complete events. As has been observed above, the Slavic imperfective aspect is the unmarked member in the aspectual opposition ‘perfective-imperfective’, and imperfective verb forms can be used in contexts and with functions typically conveyed by the marked perfective verb forms.

The partitive *an*-construction licenses only a restricted class of predicate-argument relations. As Krifka (1986; 1989:182-183) suggests, these are predicates that entail an ‘object-event’ homomorphism. Intuitively, given that *baute* ‘built’ in (1b) is a homomorphic predicate, and given that the denotation of *an einem house* (‘on/at a house’), the Incremental Theme, is a part of a house,

‘built’ maps a part of a house into an event of building that part of a house. The structure-preserving mappings, defined by Krifka (and given here in (19), section 3.3.1), motivate the transposition of a partitive relation in the spatial domain (a relation of a whole house to its proper parts) into a partitive relation in the domain of events and their temporal run-times (a relation of a whole event of building of a house to its proper parts). Predicates that are not homomorphic are not licensed in the partitive *an*-construction, as (5b) shows:

- (5) a. Alex sah ein Haus.
 Alex saw a.SG.ACC house
 ‘Alex saw a house.’
- b. Alex sah ***an** einem Haus.
 Alex saw ***on** a.SG.DAT house
 *‘Alex saw on a house.’

The range of the German partitive *an*-construction is narrower than the range of the progressive construction in English or the class of imperfective sentences in Slavic languages. In addition to this core constraint on the partitive *an*-construction in German, which involves the notion of ‘partitivity’ and the ‘object-event’ mappings, I propose (see also Filip, 1989) that the partitive *an*-construction involves four further constraints: (i) the base predicate is telic, (ii) the ‘uniqueness of events’ condition is satisfied, (iii) the Incremental Theme argument denotes a participant whose spatial *extent* or volume changes during the course of the event and whose *extent* is directly related to the temporal extent of the event, (iv) the subject is linked to the Agent thematic role. The third constraint indicates that incremental events denoted by partitive *an*-sentences are of the first canonical type, isolated in section 3.6, chapter 3. This constraint delimits the prototypical instantiations of the partitive *an*-construction. I will also show that the acceptability of the partitive *an*-construction can vary depending on the discourse context as well as on the knowledge about the larger scenes that the linguistic material in a given partitive *an*-sentence evokes. In short, there are both semantic and pragmatic constraints that figure in the description of the partitive *an*-construction in German. Let me now look at these constraints in more detail.

The partitive *an*-construction licenses predicates that take the Incremental Theme argument. This most general restriction correctly excludes predicates denoting states (both dynamic and static), momentaneous events, and processes. Process predicates combined with

the prepositional *an*-phrase are either ungrammatical, such as (6) and (7), or if they are grammatical, such as (8), they do not have a partitive interpretation, that is, they do not have incomplete objects in their denotation.

- (6) *Eva streichelte an einer Katze.
 *Eve stroked on a.SG.DAT cat
 *‘Eve stroked on a cat.’
- (7) *Thomas hörte an einem Geräusch.
 *Thomas heard on a.SG.DAT noise
 *‘Thomas heard on a noise.’
- (8) Berta zog an einem Wagen.
 Berta dragged on a.SG.DAT cart
 ‘Berta dragged/tugged at a cart.’

(6) would be very odd if the *an*-PP were to be interpreted locatively, while (7) does not allow for a locative interpretation. Neither (6) nor (7) allows for a partitive interpretation of the prepositional *an*-phrase. Consequently, it does not allow for a partitive interpretation of the predicate: for example, it is not possible to construe a situation in which parts of a cat would be mapped into parts of the event of stroking of a cat. In (8) the prepositional *an*-phrase has a locative interpretation only.

The partitive preposition *an* cannot be used with predicates denoting happenings, such as *entdecken* ‘to discover’, as (9) shows:

- (9) *Ich entdeckte an einem Schatz.
 *I discovered on a.SG.DAT treasure
 *‘I discovered on a treasure.’

Happenings are thought of as not being extended in time, as point-like events. Since they have no proper internal subevents, they are trivially indivisible, and hence the partitivity operation cannot be applied to them. This explains why such verbs as *entdecken* ‘to discover’, *schlagen* ‘to hit’, *brechen* ‘to break’, for example, cannot be used in the partitive *an*-construction.

The partitive preposition *an* cannot be used with state predicates, as the following examples show:

- (10) a. *Peter hat an einem Haus.
 *Peter owns on a.SG.DAT house
 *‘Peter owns on a house.’
- b. *Daniel kennt an einer Gaststätte in der Nähe.
 *Daniel knows on a.SG.DAT pub in the vicinity
 *‘Daniel knows on a pub nearby.’

However, the use of the partitive *an* with state predicates is acceptable if a partitive interpretation of the referent of the prepositional object can be construed:

- (11) Alessandroliebte an Silvia, dass sie so klug war.
 Alessandroloved on Silvia that she so smart was
 ‘Alessandro loved about Silvia that she was so smart.’

(11) is felicitous if there were past instances of Alessandro bearing certain relations to a certain characteristic property of Silvia, namely her being smart. (11) can be paraphrased with *Alessandro liebte Silvias Klugheit* - ‘Alessandro loved Silvia’s intelligence’, and not with *Alessandro liebte Silvia* - ‘Alessandro loved Silvia’.

After having motivated the most basic constraint on the semantic class of base predicates that serve as inputs into the partitive *an*-construction, let me now turn to the other four constraints. First, such base predicates must be telic, which means that its Incremental Theme argument must be quantized, as (12) and (13) show:

- (12) a. Ich trank Wein.
 I drank wine.SG.ACC
 ‘I drank wine’ / ‘I was drinking wine.’
- b. *Ich trank an Wein.
 *I drank on wine
 *‘I drank on wine.’
- (13) a. Paula strickte Jacken.
 Paula knitted jacket.PL.ACC
 ‘Paula knitted jackets.’ / ‘Paula was knitting jackets.’
- b. *Paula strickte an Jacken.
 *Paula knitted on jacket.PL.DAT
 *‘Paula knitted on jackets.’

The partitive *an*-construction makes an assertion about a proper part of a quantized object (singular or plural), and given the ‘object-event’ mappings, it makes an assertion about a proper part of a quantized (or telic) event to which the object is subjected.

In this connection, it may also be mentioned that the partitive *an*-construction only licenses predicates whose Incremental Theme argument is their subcategorized argument, and not just an argument that has been added to the original argument structure, for example, by some argument structure augmentation process in the lexicon. Consider the following example:

- (14) a. Gestern rannte Marco eine Meile.
 yesterday ran Marco a.SG.ACC mile
 ‘Yesterday, Marco ran a mile.’
- b. *Gestern rannte Marco an einer Meile.
 *yesterday ran Marco on a.SG.DAT mile
 *‘Yesterday, Marco ran on a mile.’

Eine Meile rennen ‘to run a mile’ denotes telic events and parts of a mile can be gradually mapped into the event of running a mile. However, the measure noun phrase *eine Meile* ‘a mile’ is not a subcategorized argument of the head verb *rennen* ‘to run’.

Second, the best examples of partitive *an*-sentences contain a particular subclass of homomorphic predicates, namely predicates like *eat a sandwich*, *drink a cup of coffee*, *write a letter*, *build a house*, *knit a sweater*. To illustrate this point, consider the contrast between examples in (15) and (16):

- (15) a. Ich trank an einem Glas Wein.
 I drank on a.SG.DAT glass wine
 ‘I was drinking a glass of wine.’
- b. Paula strickte an einer Jacke.
 Paula knitted on a.SG.DAT jacket
 ‘Paula was knitting a jacket.’
- (16) a. *Berta spielte an einer Sonate.
 *Berta played on a.SG.DAT sonata
 *‘Berta played on a sonata.’

- (16) b. *Ich kopierte an einem Aufsatz.
 *I copied on a.SG.DAT paper
 *‘I copied on a paper.’

The Incremental Theme arguments in (15), but not those in (16), denote objects that can be subjected to an event at most once. The reason is that their existence is contingent on the event to which they are subjected, they come into existence or disappear in the course of the denoted events. Consequently, events denoted by sentences like those in (15) are “non-resettable” with one and the same object token and an iterative interpretation is excluded. In such cases, an event is related to one specific object undergoing a permanent change during its course. Krifka (1986, 1992) defines the condition of *uniqueness of events*, which ensures that there is only one event related to the object by the thematic relation (that is, the Gradual Patient relation in Krifka’s terms and the Incremental Theme relation in Dowty’s terms). (See also section 3.3.1, chapter 3).

By contrast, homomorphic predicates with Representation-Source Themes (see Dowty, 1991:569) like *spielen* ‘to play’ and *kopieren* ‘to copy’ in (16) cannot occur in the partitive *an*-construction. Predicates with Representation-Source Themes denote the realization of a given source object, and they are resettable: For example, the same performance piece or the same source object can be reproduced many times without bringing about any changes in the original object or in the abstract type underlying the actual performance piece.

Third, in the prototypical cases, partitive *an*-sentences denote events whose ‘objects’ are gradually and permanently changed *and also* whose boundaries are determined by the extent of the referent of the Incremental Theme argument in the concrete physical domain (as it gradually comes into existence or disappears). For example, in (17) spaghetti changes in its softness, in one of its qualitative aspects, rather than in its volume or extent. Hence, predicates like **an den Nudeln kochen* ‘*to cook on pasta’ are odd or unacceptable, and so is **am Bier kochen* ‘*to brew on the beer’, for example.

- (17) *Marco kochte an den Nudeln.
 *Marco cooked on the.PL.DAT noodles
 *‘Marco cooked on pasta.’

A given *an*-sentence is well-formed if a suitable ‘extent’ construal of the Incremental Theme argument can be found. For example, the extent may be understood in terms of a well-understood procedure, such as the

preparation of a meal. (18) is grammatical, because what is relevant here is not merely the fact that certain ingredients are subjected to an internal change in the process of cooking, but rather that a certain procedure with a number of ordered steps is followed so that a certain type of meal gradually comes into existence with all of its conventional sequence of courses:

- (18) Meine Freunde kochten am Abendessen.
 my friends cooked on.the.SG.DAT dinner
 'My friends were cooking dinner.'

As can be expected, the judgements of native speakers vary with respect to what counts as an acceptable 'extent' construal and hence with respect to the acceptability of particular partitive *an*-sentences. The linguistic and extra-linguistic discourse context of a verbal predicate as well as general world knowledge is relevant in judging whether a given object is incrementally affected in its spatial properties or not. Consider, for example, predicates in (19)

- (19) a. (*) an einem Hemd bügeln - on a shirt to.iron
 b. (*) an einem Hemd waschen - on a shirt to.wash
 c. (*) am Boden schrubben - on-the floor to.scrub
 d. (*) am Haar kämmen - on-the hair to.comb
 e. (*) am Buch lesen - on-the book to.read

All predicates denote events that are resettable with one and the same object token. For example, the physical properties of a book do not change when somebody is reading it. (19b) is acceptable if it refers to a situation in which the shirt is gradually subjected to the event of washing and, say, various dirty spots are being washed out and disappear one by one. This is the case, for example, when the shirt is washed by hand. However, speakers who normally think of washing in terms of washing laundry in a washing machine, that is, for whom the event of washing consists merely in putting the laundry into the washing machine, consider (19b) not well-formed. This example also clearly shows that the acceptability of a given partitive *an*-sentence is not a purely semantic matter, rather it also depends on the possibility to assign a given *an*-sentence the appropriate incremental event interpretation of the first canonical type. This depends on the context of use and on what the interpreter knows about the larger scenes that the linguistic material evokes.

There are certain linguistic expressions that emphasize the gradual manner in which the referent denoted by the Incremental Theme argument is subjected to the event. This improves the chances that a given *an*-sentence will be acceptable, even though it denotes a resettable event with one and the same referent of the Incremental Theme argument. For example, *herum*, abbreviated as '*rum*' '(all) around', is used in this way. It emphasizes both the gradual and partial effect on the Incremental Theme argument:

- (20) Ich habe schon eine Viertelstunde an diesem Hemd
 I have already a quarter-hour on this shirt
- 'rumgebügelt und es ist immer noch nicht glatt.
 all.around.ironed and it is always still not smooth
 'I have been ironing on this shirt for a quarter of an hour and it
 still is not smooth.'

Finally, the partitive *an*-construction requires that its the subject be linked to the Agent thematic role. Examples in (21) are unacceptable, because the subject noun phrase is linked to the Instrument (21a) and Cause (21b) thematic role.

- (21) a. *Die elektrische Mühle mahlte an den Kaffeebohnen.
 *the electric mill ground on the.PL.DAT coffee.beans.PL.DAT
 *'The electric grinder ground on the coffee beans.'
- b. *Die Sonne trocknete an der Wäsche.
 *the sun dried on the.SG.DAT laundry
 *'The sun dried on the clothes.'

I suggest that predicates with the partitive *an*-phrase linked to the Incremental Theme argument are derived by a lexical rule from corresponding predicates with the Incremental Theme argument linked to the accusative direct object (22). The constraints on the application of the lexical rule include the conditions (i) - (iv) discussed above. Such a rule generates a predicate with a new partitive meaning and an alternative argument structure that links the Incremental Theme argument to the partitive *an*-phrase. The partitive predicate inherits most of its syntactic, semantic, and pragmatic information structure from a predicate with the Incremental Theme realized as the accusative direct object. Partitive predicates need not be individually listed in the

lexicon, because German makes use of such a lexical rule in a productive way.

- (22) Lexical rule for the derivation of partitive predicates in German

*baute*₁ ‘he/she built’

SUBCAT	<[1]NOM, [2]ACC>
θ-ROLE	<[1]Agent, [2]Incremental Theme>

↓

*baute*₂ ‘he/she built’ or ‘he/she was building’

SUBCAT	<[1]NOM, [2]PP[an+DAT]>
θ-ROLE	<[1]Agent, [2]Incremental Theme>

That is, there is only one entry listed in the lexicon, it is the lexical entry for the base predicate that links the Incremental Theme to the direct object realized in the accusative case (e.g., *baute*₁) and the partitive predicate that links the Incremental Theme argument to the prepositional *an*-phrase (e.g., *baute*₂) is derived from it “on the fly” by the lexical rule. The lexical strategy is justified by the fact that the use of the *an*-phrase as a partitive marker is restricted to a limited class of homomorphic predicates for which the conditions (i) - (iv) hold.

Other Germanic languages, Dutch and Swedish, for example, also have partitive prepositional constructions similar to the German one². Some examples are given in (23):

- (23) a. Katinka breide een trui. Dutch
 ‘Katinka knitted a sweater.’
- b. Katinka breide aan een trui.
 (i) ‘Katinka knitted at a sweater.’
 (ii) ‘Katinka was knitting a sweater.’

Compare this with the corresponding German and Swedish partitive/non-partitive alternations³.

- (24) a. Katinka strickte einen Pullover. German
 ‘Katinka knitted a sweater.’

- (24) b. Katinka strickte an einem Pullover.
 (i) 'Katinka knitted at a sweater.'
 (ii) 'Katinka was knitting a sweater.'
- (25) a. Katinka stickade en tröja. Swedish
 'Katinka knitted a sweater.'
- b. Katinka stickade på en tröja.
 (i) 'Katinka knitted at a sweater.'
 (ii) 'Katinka was knitting a sweater.'

Although I only examined German, it may be assumed that the conditions on the application of the lexical rule deriving partitive predicates in Dutch and Swedish will overlap with those in German.

6.3 Aspect in Finnish

The Finnish partitive-accusative case alternation is primarily used to indicate part-whole relations in the denotational domain of noun phrases. It can also be used to express functions posited here for the interpretation of the perfective and imperfective operators in Slavic languages: the accusative case marking on the Incremental Theme argument (and also on the Holistic Theme argument in the directed-motion construction) adds the 'totality' condition to the meaning of a complex base verbal predicate, and the output predicate denotes completed events. The partitive case marking applied to the same types of thematic arguments instantiates the function for the interpretation of imperfective aspect, namely it relates eventualities to their parts. This is illustrated by examples in (26) - (29):

- (26) a. Join kahvia. Luin kirjoja.
 drank.1SG coffee.SG.PART read.1SG book.PL.PART
 (i) 'I drank coffee.' 'I read books.'
 (ii) 'I was drinking coffee.' 'I was reading books.'
- b. Join kahvin. Luin kirjat.
 drank.1SG coffee.SG.ACC read.1SG book.PL.ACC
 'I drank up (all) the coffee.' 'I read (all) the books.'
- (27) a. Tyttö luki läksyä (PART). (Karlsson, 1983:80)
 'The girl was doing her homework (i.e., had not yet finished).'

- (27) b. Tyttö luki läksyn (ACC).
'The girl did (i.e., finished) her homework.'
- (28) a. Presidentti ampui lintua (PART).
'The president shot at (or: shot and wounded) a/the bird.'
- b. Presidentti ampui lintun (ACC).
'The president shot a/the bird.'
- (29) a. Suurensin valokuvaa (PART).
(i) 'I was enlarging a/the photo.'
(ii) 'I enlarged a/the photo (a bit, but I could have made it bigger still).'
- b. Suurensin valokuvan (ACC).
'I enlarged a/the photo (to a given size).'

The correlation of the partitive case marking with incomplete or partial eventualities and of the accusative case marking with completed events is described in traditional Finnish grammar handbooks in the following way: "The object is in the partitive when it expresses an indefinite, non-limited quantity (divisible words and plural words)" (Karlsson, 1983:81). At the same time, it may be used if the action is directed at an indefinite part of the object, if it does not lead to "any 'important' final result (i.e. the action is irresultative)" (Karlsson, 1983:80). The accusative suffix marks the object for "a whole quantity or a definite quantity" (Karlsson, 1983:94) and it also expresses a resultative action in affirmative sentences (see Karlsson, 1983:94; Dahl and Karlsson, 1976:11; Tommola, 1990:361), that is, it may indicate a 'crucial change in the state of the object' (see Dahl and Karlsson, 1976:8; also Fromm and Sadeniemi, 1956:120-21, 123).

The partitive-accusative alternation on the nouns is not always correlated with the expression of (in)complete eventualities, as is shown in the following examples:

- (30) a. Näin kukkia.
saw.1SG flower.PL.PART
'I saw (some) flowers.' (i.e. there were others I did not see)
- b. Näin kukat.
saw.1SG flower.PL.ACC
'I saw the flowers.' (i.e. all of them, a total quantity)

Krifka (1986, 1989:188-190) suggests that it is the case marking on Incremental Theme nouns that influences the interpretation of complex predicates or sentences as having complete or incomplete eventualities in their denotation. In other words, it is the partitive and accusative marking on the Incremental Theme argument that serves to convey meanings comparable to the aspectual perfective-imperfective distinction in Slavic languages. This hypothesis has one clear advantage over previous proposals: it allows us to narrow down the class of aspectually-relevant sentences to a semantically well-defined set, instead of relying on such vague notions as ‘resultativity’ or ‘a crucial change in the state of the object’.

Although in both Finnish and German the aspectually relevant marker is located on the syntactic argument linked to the Incremental Theme role, the domain of application of the German accusative-partitive alternation that is aspectually relevant is more constrained than that of the Finnish accusative-partitive case alternation. Only in German, but not in Finnish, the Incremental Theme argument is required to be quantized.

What sentences like (30) have in common with sentences like (26) - (29) is that the partitive and accusative case marking functions as a partitive and totality (or ‘universal’) operator over the denotations of nouns. This is directly tied to another function of the partitive and accusative case marking, namely to contribute to the differences in (in)definiteness of noun phrases. Finnish does not have an overt article system, and the case alternation can, to a certain extent, compensate for its lack. Tommola observes that “the most obvious discourse functions could be found--in functions, related to those of articles” (Tommola, 1990:361). “If compared with Germanic languages, the partitive can be said to correspond to the lack of an article, with at least as good evidence as it is said to correspond to NSV [imperfective aspect] if compared with Slavic languages” (Tommola, 1990:351-2). Notice that the distinction in (in)definiteness is correlated with the quantization properties of the noun to which the case marking is applied. It is most clearly pronounced with cumulative (mass and plural nouns), as can be seen in (26). Here the accusative marking on the mass and plural noun yields a totality and definite interpretation of the whole noun phrase, while the partitive case marking on the same type of nouns results in a partitive and indefinite interpretation of the noun phrase. The partitive and accusative case marking does not change the (in)definiteness potential of a *count* noun to which it is applied, as (27) - (29) show. Such examples show that it would be wrong to claim that in Finnish perfective constructions the direct object reference is always specific, as

Tommola (1990:352-353) seems to assume when he speaks of 'specific resultativity'.

As far as the expression of (in)definiteness is concerned, Finnish and Czech exhibit interesting similarities in that the functions that are ascribed to articles in English, for example, can be, to a certain extent, here taken over by the same devices that are used to convey information about whether a sentence denotes completed events or incomplete/partial eventualities, that is, semantic distinctions in the domain of grammatical aspect. Perfective verbs in Slavic require the definite interpretation of mass and plurals linked to the Incremental Theme argument, while imperfective verbs impose no such restriction. In Finnish, the accusative case marking on a mass or plural noun in an undetermined noun phrase induces the definite interpretation of a whole noun phrase, while the partitive case marking on the same type of noun often induces the indefinite interpretation of a whole undetermined noun phrase. Once an inherently cumulative argument is assigned a totality (or 'a maximal individual', see chapter 5) interpretation, because it is in the accusative case (Finnish) or because it is an Incremental Theme argument of a perfective verb (Czech), it is also interpreted as definite. It is important to emphasize that the necessary correlation of the totality interpretation with the definite interpretation does not apply if the relevant Incremental Theme argument is quantized: if it is headed by a singular count noun, if it contains a determiner quantifier or a measure expression. It also does not necessarily apply if there are other quantificational elements in a sentence.

If a nominal argument has a partitive interpretation, because it is in the partitive case (Finnish) or because it is an Incremental Theme of an imperfective verb (Czech), it may be quantized or cumulative. Making an assertion about a subpart of singular individual or subparts of a plural individual does not presuppose the existence of a whole quantized individual, rather it merely allows for the possible existence of some (contextually) relevant additional quantity or continuation.

The widening of our scope from the Incremental Theme argument to the incremental eventuality type (see chapter 3, section 3.6) in accounting for various cases in which verbal predicates interact with noun phrase semantics allows us to cover also those cases in which the partitive-accusative case marking on the Holistic Theme (see Dowty, 1991:569) also has an aspectual import. This situation can be found in directed-motion sentences, such as (31b) and (31c):

- (31) a. Hän ajoi autoa.
 he drove.3SG car.SG.PART
 ‘He was driving a/the car’ / ‘He drove a/the car.’
- b. Hän ajoi auton talliin.
 he drove.3SG car.SG.ACC garage.ILL
 ‘He drove the car into the garage.’
- c. Hän ajoi autoa talliin.
 he drove.3SG car.SG.PART garage.ILL
 ‘He was driving the car into the garage.’

First, notice the main verb ‘drove’ on its own is process-denoting and with such verbs the direct object is realized in the partitive case (31a). In the directed-motion sentences (31b) and (31c) the event is delimited by the Goal denoted by the noun phrase ‘garage’, and the direct object noun phrase ‘car’ is realized in the accusative case in (31b) and in the partitive case in (31c). ‘Car’ refers to the moving participant in the directed-motion event, hence it is linked to the Holistic Theme. Independently, it is assumed that the directed-motion construction entails a mapping between the positional changes of the referent of the Holistic Theme argument along some path(s) and the part structure of the event (see also chapter 3, section 3.9.4). Sentence (33b) with the accusative case marking on ‘car’ *auton* implies that the event was completed and as a result the car was in the garage. The corresponding sentence with the partitive noun *autoa* in (33c) most likely conveys ‘he was in the process of driving the car into the garage’. To take a similar example, consider (32):

- (32) a. Hän kantoi kassin (ACC) kotiin. (Karlsson, 1983:95)
 ‘He carried the bag home.’
- b. Hän kantoi kassia (PART) kotiin.
 ‘He was carrying a/the bag home.’

The expression of perfectivity in Finnish and in Slavic languages functionally overlaps in one important respect: Finnish and Czech sentences with a perfective meaning and a present tense main verb have a future time reference (under a single event interpretation). Finnish has no grammatical future tense, and “the non-past form needs a marker elsewhere, usually in the object case marking” (Toivainen, 1991:5). This is shown in (33) - (35):

- (33) a. Tyttö heittää lumi-pallon. (Toivainen, 1991:5)
 girl throws.3SG snow-ball.SG.ACC
 ‘The girl will throw the snowball’.
- b. Tyttö heittää lumi-palloa.
 girl throws.3SG snow-ball.SG.PART
 ‘The girl throws/ will throw/ is throwing a/the snowball.’
- (34) a. Kalle lämmittää saunan (ACC). (Karlsson, 1983:80)
 ‘Kalle will warm up the sauna.’
- b. Kalle lämmittää saunaa (PART).
 ‘Kalle is warming up the sauna.’
- (35) a. Syötkö kalan (ACC)? (Karlsson, 1983:95)
 ‘Will you eat a/the fish?’
- b. Syötkö kalaa (PART)?
 ‘Do you eat fish?’

Since the Finnish case marking that has the effect of aspectual operators is restricted to sentences that denote incremental eventualities, it has a much narrower range than the Slavic aspectual distinction ‘perfective-imperfective’ does. A further limitation on the expression of the category of ‘aspect’ in Finnish comes from the fact that there are contexts in which the opposition ‘partitive-accusative’ case is neutralized. For example, this is the case in negative sentences, as the object of a negative sentence is required to be in the partitive case. This is shown by contrasting the affirmative sentences (36), in which the accusative and partitive case marking on the object is correlated with the difference in the aspectual meaning of a sentence, with their negated counterparts in (37), where the accusative case marking is ungrammatical.

- (36) a. Silja joi maitoa (PART).
 ‘Silja drank (some) milk’/ ‘Silja was drinking (some) milk.’
- b. Silja joi maidon (ACC).
 ‘Silja drank (up) the milk.’
- (37) a. Silja ei juonut maitoa (PART). (Karlsson, 1983:79)
 ‘Silja did not drink the/any milk.’

- (37) b. *Silja ei juonut maidon.
 *Silja NEG drank.3SG milk.SG.ACC

Another case in which the case alternation ‘partitive-accusative’ with aspectual import is neutralized are sentences headed by psychological verbs. They require an object in the partitive case:

- (38) a. Minä rakastan sinua (PART).
 ‘I love you.’
- b. Suomi kiinnostaa minua (PART).
 ‘Finland interests me.’

Czech perfective and imperfective sentences and the comparable sentences with the partitive-accusative alternation in Finnish overlap in the following clustering of semantic properties: We can observe an affinity between the semantics of perfectivity and a totality, and hence quantized, interpretation of Incremental Theme arguments, and between the semantics of imperfectivity and a partitive interpretation of Incremental Theme arguments.

6.4 Summary and a Proposal for a Constraint-Based Analysis

The large variety of means for the expression of grammatical aspect (perfective, imperfective) can be divided into two main groups: verb-centered and noun-centered:

(39)	<u>primary expression of aspect</u>	<u>language</u>
	verb-centered and syntactic	English
	verb-centered and morphological	Czech
	noun-centered and syntactic	German
	noun-centered and morphological	Finnish

Given that the category of ‘grammatical aspect’ concerns semantic distinctions in the domain of eventualities, the natural locus for the expression of aspect is the verb (complex). This situation can be found in English and Czech, for example. English expresses the progressive aspect by means of a periphrastic verbal construction: *be V-ing*. Czech

has a variety of lexical-derivational means for the formation of perfective and imperfective verbs.

In Finnish and German an encoding system that is primarily designed for the expression of the 'part' and 'whole' relations in the domain of individuals is exploited to convey information about completed and partial (incomplete) eventualities. That is, it is exploited to express notions that are typically conveyed by (inflectional) morphological devices on verbs or by verbal function morphemes. In Finnish this is accomplished by morphological or synthetic means, namely with case marking on nouns, while in German by syntactic or constructional means, namely with a partitive prepositional phrase (which stands in a systematic opposition to the direct accusative object).

The Finnish and German case represent one of the three ways in which the Incremental Theme noun phrase interacts with the meaning of verbal predicates and sentences. Here, part-whole relations expressed by a noun phrase or a prepositional phrase linked to the Incremental Theme role determine the imperfective and perfective aspect of a complex verbal predicate or a sentence. In German and Finnish, the Incremental Theme noun phrase is specified with respect to the part-whole distinction as well as to the quantized-cumulative distinction, which is relevant to telicity, while its governing verb is unspecified on both counts. Since the Incremental Theme argument encodes all the information that is relevant to grammatical aspect and telicity of a sentence, this information appears to be 'transferred' from the Incremental Theme noun phrase onto the projections of its governing verb.

Second, quantization properties of the Incremental Theme argument determine the quantization (telicity) properties of a complex verbal predicate: cp. *John ate an apple* (telic) vs. *John ate soup* (atelic). This has been extensively discussed in English, but of course, examples from other languages are easy to find.

Third, in Slavic languages the aspectual operators, perfective and imperfective, encode the 'part' and 'whole' relations in the domain of eventualities and at the same time they are exploited to constrain the interpretation of Incremental Theme noun phrases. An Incremental Theme noun phrase is interpreted as meaning approximately *all the x*, *the whole of x*, and in the scope of the imperfective operator it tends to be interpreted as meaning *part of x*, *some x*, provided there are no other quantificational elements present in a sentence. Such meanings are typically conveyed by determiners or generalized quantifiers that are insensitive to the count-mass distinction. This is clearly manifested in those cases in which the Incremental Theme argument is realized as an undetermined mass or plural noun phrase that functions as an argument

of a perfective verb. In such cases the verb encodes all the information about grammatical aspect (perfectivity), quantization (telicity) and quantificational properties of a sentence. Hence, the information regarding part-whole relations appears to ‘flow’ from the perfective verb onto the Incremental Theme noun phrase.

As has been proposed in chapter 5, processes that appear to be inherently procedural and directional can be described in a declarative constraint-based (or unification-based) framework. The constraint-based description allows us to provide a unified analysis for all the different types of interactions between noun phrases and verbal predicates discussed here and highlight the similarities among them. (For an outline of a constraint-based approach to language description see chapter 3.9.) In constraint-based terms, what the three cases outlined above share is that a verb and an argument (direct or oblique) linked to the Incremental Theme role each specify partial information about a single linguistic object, a complex verbal predicate or a sentence. The differences are due to the differences in the encoding of the relevant information, quantization, cumulativity, and part-whole relations: namely, (i) encoding mainly on the noun (or in a prepositional phrase) or by verb morphology, and (ii) encoding by syntactic or morphological means.

In the most straightforward cases, the rules that govern the interaction between verbal predicates and noun phrases in English, Czech, German and Finnish make reference to the Incremental Theme argument. In German and Finnish the influence of the Incremental Theme argument on the telic and atelic interpretation as well as on the grammatical aspect of a complex verbal predicate or a sentence is encoded by matching the values of the feature attributes ‘QUANT’, ‘PART’ (German) and ‘TOT’ (Finnish) of the Incremental Theme argument and the complex verbal predicate. For German a simplified unification schema is given in (40):

(40)

$$\left[\begin{array}{l} \textit{phrase} \\ \text{HEAD [1]} \end{array} \right] \rightarrow \left[\begin{array}{l} \textit{phrase} \\ \text{HEAD [1]} \left[\begin{array}{l} \textit{verb} \\ \text{QUANT [2]} \\ \text{PART [3]} \end{array} \right] \end{array} \right] \left[\begin{array}{l} \textit{phrase} \\ \text{HEAD} \left[\begin{array}{l} \textit{noun} \vee \textit{prep} \\ \text{QUANT [2] +} \\ \text{PART [3] } \alpha \end{array} \right] \end{array} \right]$$

The feature attribute ‘PART’ has as its value the variable α that stands for the positive value ‘+’, or the indeterminate value ‘[]’⁵. The positive value ‘+’ is introduced by the Incremental Theme noun phrase realized

as the partitive *an*-phrase, while the indeterminate value ‘[]’ by the Incremental Theme noun phrase which is accusative-case marked. The reason is that the German *an*-construction is the marked member in the accusative-partitive opposition and serves to convey partial (or incomplete) events. The construction with the accusative-case marked Incremental Theme noun phrase is aspectually unmarked, because it can be instantiated by sentences that have a completive entailment, but also by sentences that may have a partitive entailment in German: cp. *Hans baut ein Haus* (ACC) - ‘John is building a house.’ (This is only one possible reading of this sentence.) The construction with the partitive phrase ‘*an*+NP’ linked to the Incremental Theme role bears close semantic affinities to the English progressive construction, which is also the marked member in the aspectual opposition ‘progressive vs. nonprogressive’. The German partitive construction licenses predicates that denote dynamic events with a certain temporal extent. Unlike the Slavic imperfective aspect, which is the unmarked member in the aspectual opposition ‘perfective-imperfective’, the German *an*-construction cannot be used to convey completed events. As has been observed, the accusative-oblique object alternation in German operates on top of quantized verbal predicates. The reason is that the partitive *an* preposition can be only applied to quantized base predicates (see **Er ass an Nüssen* - *‘he ate on nuts’; **Er trank an Wein* - *‘he drank on wine’). Hence, the feature specification ‘[PART +]’ only co-occurs with ‘[QUANT +]’ and the accusative-oblique object alternation on the Incremental Theme argument only applies in the domain of quantized predicates.

A simplified unification schema for Finnish is given in (41):

(41)

$$\left[\begin{array}{c} \textit{phrase} \\ \text{HEAD [1]} \end{array} \right] \rightarrow \left[\begin{array}{c} \textit{phrase} \\ \text{HEAD [1]} \left[\begin{array}{c} \textit{verb} \\ \text{QUANT [2] } \alpha \\ \text{TOT [3] } \beta \end{array} \right] \end{array} \right] \left[\begin{array}{c} \textit{phrase} \\ \text{HEAD} \left[\begin{array}{c} \textit{noun} \\ \text{QUANT [2] } \alpha \\ \text{TOT [3] } \beta \end{array} \right] \end{array} \right]$$

The value variable β of the feature attribute ‘TOT’ is the positive value ‘+’ if the Incremental Theme noun phrase is accusative-case marked and it is ‘[]’ if it is partitive-case marked. This is motivated by the observation that the accusative is the marked member in the accusative-partitive alternation that is aspectually relevant in Finnish. Finnish sentences with an accusative-case marked Incremental Theme noun phrase denote completed events, or events as integrated wholes. In this

respect, such Finnish sentences bear close semantic affinities to Slavic sentences with perfective verbs. Similarly, as Slavic sentences with imperfective verbs, Finnish sentences with a partitive-marked Incremental Theme noun phrase have a range of contextually determined interpretations. They may be used to convey on-going eventualities ('progressive' use), or state the fact that an eventuality of a certain type took place without any further implications. Hence, in the opposition 'accusative-partitive' case marking that is aspectually relevant, the accusative case is semantically the marked member, and the partitive is unmarked.

The feature specification '[TOT +]' only co-occurs with the feature specification '[QUANT +]', while '[TOT []]' can be combined with either '[QUANT +]' or '[QUANT -]'. The accusative suffix on a given noun indicates that the reference is to the whole denoted individual ('[TOT +]'), and that the noun phrase headed by such a noun may have a definite reference (see Karlsson 1983:94; Dahl and Karlsson 1976:11; Tommola 1990:361). The feature specification '[TOT +]' associated with the accusative Incremental noun phrase must match with the positive values of the attributes '[QUANT +]' of the Incremental Theme noun phrase, the verb phrase and the whole sentence. This is due to the feature co-occurrence restriction '[TOT +]' → '[QUANT +]'. A noun is case-marked with the partitive when it expresses an indefinite, non-limited quantity (mass and plural individuals), or a part of a quantized individual. Hence, a partitively marked noun phrase introduces the feature specification '[TOT []]' and in addition, it may introduce the feature specification '[QUANT +]' or '[QUANT -]' depending on the inherent quantization properties of its head noun.

The rules that govern the influence of noun (or prepositional) phrases on verbal predicates or sentences in German, Finnish and English, on the one hand, and the influence of verbs on noun phrases in Czech, on the other hand, point to the same fragment of conceptual structure, which I labeled here as an incremental eventuality type. It involves a participant that undergoes a change in successive stages, and through this change it is intrinsically tied to the temporal extent of the event. In the most straightforward cases this participant is realized as the Incremental Theme argument. The incremental eventuality type represents one cross-linguistic schematization, one conventional way in which languages conceptualize the structure of various states of affairs in the real world. There are different ways in which we can represent the intrinsic relation between an eventuality and the participant that gradually undergoes a change in lockstep with the eventuality as it evolves in time. Here, this relation is represented by establishing

homomorphic mapping relations between the denotations of noun phrases and verbal predicates. This presupposes that some of their denotational properties be analyzed in terms of the mereological ‘part’ structure, and modelled algebraically as join complete semi-lattices (see also chapter 2 and chapter 3, section 3.3.1). Languages differ with respect to the encoding of the part-whole relations that become important whenever we present eventualities as being delimited (or quantized) or non-delimited (cumulative) and as having run their whole ‘natural’ course (completion) or being parts of larger eventualities (partitivity).

The fact that the part-whole relations are encoded on the verb in Czech, on the one hand, and by means of noun phrases (or prepositional phrases) in English, Finnish and German is a matter of cognitive choices inherent in language-specific schematizations, and not imposed on the language representations by the real world (facts, or states-of-affairs). These choices, in turn, are contingent on the whole system of linguistic representations in a given language and on the conceptual systems associated with them. At the same time, we have observed that the same general constraints govern the interaction between nominal and verbal predicates in different these typologically distinct Indo-European languages. This strongly suggests that it cannot be a matter of coincidence that languages converge on the same constraints, but rather a matter of common parallels and interactions between the denotational domains of verbal and nominal predicates that are pervasive in natural languages. (See also chapter 2, section 2.5.) Further investigations of the regularities that govern such parallels and interactions between nominal and verbal predicates will reveal more insights into the semantic differences underlying the verb-noun distinction and its relation to the ontology of individuals and eventualities.

Notes

1. I will leave aside the habitual interpretations of sentences like *Alex baut ein Haus* - ‘Alex builds a house’, in a context, for example, in which Alex is a contractor and builds a new house every month. As has been pointed out at several places above, iterativity and habituality concern the “plurality” of events, and hence they should be treated separately.

2. In Dutch, for example, we also find partitive constructions like *hij is aan het tuinieren* ‘he is gardening’, literally ‘he is at/on the gardening’, with the verbal noun in *-en* (see Comrie, 1976:98-9).

3. The Dutch and Swedish examples are taken from Verkuyl (1972) and Dahl (1981:87).

4. See also Weist et al. (1991:73) who observe with respect to this sentence that the non-past form, Finnish present, “combines with a direct object in the accusative case to produce future meaning”.

5. The indeterminate value ‘[]’ is an empty feature structure, or a variable that subsumes “all other feature structures, atomic or complex, because, as the trivial case, they contain no information at all” (Shieber, 1986:15). According to Shieber (1986), the indeterminate value ‘[]’ “can be viewed as being a non-monotonic device. That is, a system with ANY values can have an ill-formed functional structure become well-formed through further unifications. In this sense, ANY violates the spirit of declarativeness, although it does in such a weak way that we are willing to put up with it” (Shieber, 1986:44).