

Verbal Morphology, Case Marking, and Telicity

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**Review of *Aspect and Predication: The Semantics of Argument Structure* by
Gillian C. Ramchand**

This book is an important contribution to the study of aspect and the interface between syntax and semantics. It discusses data drawn mainly from Scottish Gaelic (henceforth abbreviated as SGaelic) but also from Irish, Bengali and others. A major influence upon this work is Krifka's (1992) work on the relationship between the reference property of NPs (e.g. *an apple*) and the aspectual property (or "temporal constitution" in Krifka's terms) of VPs or sentences that contain them (e.g. *eat an apple*). The syntactic proposal made in this book about SGaelic can be seen as an attempt to test and validate Tenny's aspectual interface hypothesis. However, this book goes beyond what Tenny (1987, 1992, 1994) accomplishes in that Ramchand searches for a theory that offers a compositional semantics that supports her syntactic account of the data discussed. The data discussed in the book are very intriguing, and Ramchand's proposal makes an important contribution to the syntax semantics interface having to do with aspectual phenomena.

The main point made by Ramchand concerning aspect in SGaelic is that the temporal constitution (i.e., aspectual property) of a VP or S depends upon the tense form of the verbal predicate and the Case marking on the object NP and *not* on the reference type of the object NP. To be more specific, Ramchand claims the following: (i) A sentence in the simple past or in the perfect is always interpreted as telic (i.e., bounded), whereas a sentence in the imperfect is always interpreted as atelic (i.e., unbounded). (ii) This semantic distinction is correlated with different Case markings on the object NP. The simple past and the perfect require that the object NP be direct Case marked, whereas the imperfect requires

that the object NP be genitive Case marked. (iii) Object NPs with different Case markers occupy different syntactic positions. The object NP that precedes the verb is located in the Spec of VP position, and the object NP that follows the verb is in the complement of VP position. (iv) This syntactic difference correlates with the semantic differences between the two types of NPs. In general, direct case-marked object NPs occupy the Spec of VP position and are interpreted “aspectually,” whereas genitive case-marked object NPs occupy the complement VP position and do not receive an “aspectual” interpretation. An independent projection called AspP is posited, and its head (Asp) is held responsible for giving the direct case-marked NP in the Spec of VP position an aspectual character. Due to space limitations, the discussion of SGaelic data in this review will refer to English glosses (indicated by single quotes) rather than actual SGaelic expressions.

In order to justify her syntactic proposal about aspectual phenomena in SGaelic and some related languages, Ramchand presents a proposal about how to interpret the syntactic structures posited by her proposal. As a starting point, Ramchand examines Krifka’s (1992) proposal, which is couched in an eventuality-based framework. In this framework, verbs are represented as predicates of events and nominal expressions that are understood to be “arguments” of verbs are introduced via relations between events and individuals. These relations can be regarded as thematic roles. For example, (1a) is represented as in (1b), whereas (1c) is represented as in (1d).

- (1) a. eat an apple
 b. $\lambda e \exists x [\text{an apple}(x) \wedge \text{eat}(e) \wedge \text{PATIENT}(e,x)]$
 c. eat apples
 d. $\lambda e \exists x [\text{apples}(x) \wedge \text{eat}(e) \wedge \text{PATIENT}(e,x)]$

Krifka’s proposal explains why (1a) is a telic event predicate whereas (1c) is not by referring to the semantic difference between *an apple* and *apples*. On the basis of a lattice

structure assumed for both objects and events, Krifka (1992: 32) defines second order predicates QUA (quantized) and CUM (cumulative) as in (2).

- (2) a. $\forall P[\text{QUA}(P) \leftrightarrow \forall x \forall y [[P(x) \wedge P(y)] \rightarrow P(x \sqcup y)]]$ (quantized reference)
 b. $\forall P[\text{CUM}(P) \leftrightarrow \forall x \forall y [[P(x) \wedge P(y)] \rightarrow x \text{ is not a proper part of } y]]$
 (cumulative reference)

Krifka (1992: 39) also defines some properties of thematic roles as in (3).

- (3) a. $\forall R[\text{UNI-E}(R) \leftrightarrow \forall e \forall e' \forall x [[R(e,x) \wedge R(e',x)] \rightarrow e = e']]$ (uniqueness of events)
 b. $\forall R[\text{MAP-O}(R) \leftrightarrow \forall e \forall e' \forall x [[R(e,x) \wedge e' \text{ is part of } e] \rightarrow \exists x' [x' \text{ is part of } x \wedge R(e',x')]]$ (mapping to objects)
 c. $\forall R[\text{MAP-O}(R) \leftrightarrow \forall e \forall x \forall x' [[R(e,x) \wedge x' \text{ is part of } x] \rightarrow \exists e' [e' \text{ is part of } e \wedge R(e',x')]]$ (mapping to events)

Krifka (1992:35) defines a telic event predicate as one that has the property STP (set terminal point), which is defined as in (4).

- (4) $\forall P[\text{STP}(P) \leftrightarrow \forall e [P(e) \rightarrow \forall e' [[P(e') \wedge e \text{ is a proper part of } e'] \rightarrow e \text{ and } e' \text{ share the same terminal point}]]]$ (uniqueness of events)

Krifka's proposal shows that (1b) is quantized because *an apple* is quantized and the thematic role associated with the object NP of *eat* (represented here as PATIENT) has the properties UNI-E, MAP-E and MAP-O. Since any predicate of events that is quantized also has the STP property, (1b) is a telic predicate. On the other hand, (1d) is an atelic (= cumulative) predicate because *apples* is cumulative.

Ramchand argues that if Krifka's proposal is adopted to account for the SGaelic facts summarized above, then it is hard to understand why all past or perfect sentences must be interpreted as telic event predicates regardless of the reference type of the object NP. Ramchand's claim can be summarized as follows. With consumption or creation verbs like 'drink' and 'write' in SGaelic, one could hypothesize that the object NP in a SGaelic sentence in the simple past or in the perfect invariably has a quantized reference regardless of its overt morphological form and that this is responsible for the fact that the entire sentence is interpreted as quantized (i.e., telic). However, we cannot use this reasoning to account for the examples that involve verbs like 'push' and 'drive'. For example, in English both *push a cart* and *push carts* (to the extent that we can make sense of the latter) are cumulative event predicates. In other words, regardless of whether the object NP is quantized (*a cart*) or not quantized (*carts*), the entire VP is a cumulative event predicate. We can assume that 'push' in SGaelic can receive the same semantic characterization. Thus, the fact that each SGaelic sentence in the simple past or in the perfect is required to receive a telic interpretation cannot be explained in terms of the assumption that its object NP invariably has a quantized reference. Ramchand thus concludes that at least in SGaelic Krifka's proposal is not sufficient to calculate the temporal constitution of the VP or S.

In order to account for the SGaelic data, Ramchand (pp. 70 - 71) proposes two semantic constraints as in (5a-b). The morpheme *air* indicates the perfect; the morpheme *ag* indicates the imperfect. The difference between the perfect (or the simple past) and the imperfect is characterized here in terms of the second order predicate of events STP (set terminal points) as defined above in (4).

- (5) a. *air* [+bounded]: Where 'air' is the head of the AspP, whose semantic interpretation is ϕ , the following semantic constraint must be satisfied
- $$\phi = \lambda e[\alpha(e) \wedge \text{STP}(\alpha)].$$

- b. *ag* [-bounded]: Where ‘*ag*’ is the head of the AspP, whose semantic interpretation is ϕ , the following semantic constraint must be satisfied
- $$\phi = \lambda e[\alpha(e) \wedge \neg\text{STP}(\alpha)].$$

(5a–b) represent what Ramchand needs to accomplish in a nutshell. However, the question is how we make sure that Asp phrases receive desired interpretations in individual Cases. Ramchand faces two separate tasks here. One is to guarantee that a VP in the perfect has the STP property as required by (5a). The other is to ensure that a VP in the imperfect fails to have the STP property (\approx have the CUM property) as required by (5b). Let me discuss them separately in what follows.

Ramchand claims that the direct Case-marked object NP is associated with an “aspectual role,” which makes the resulting event predicate bounded in some sense. This is encoded in her theory as the constraint given above as (5a). I discuss two sets of data separately here. One concerns verbs that Krifka’s original system is capable of dealing with (e.g., ‘eat’, ‘write’, ‘read’, etc.); the other concerns motion verbs (e.g., ‘push’) and change of state verbs (e.g., ‘yellow’), which Krifka chooses not to discuss formally. Regarding the former, Ramchand would have to adopt Krifka’s original approach to obtain the right result. That is, in order to obtain a telic predicate of events out of an apparent atelic predicate of events like *eat popcorn*, we need a covert delimiting expression (such as a determiner) to interpret the resulting VP (or S) as a telic predicate. As for examples like *eat popcorn*, I believe what happens in SGaelic is analogous to what is found in Japanese. Consider (6).

- (6) Taroo-wa poppukoon-o go-fun-de tabe-ta.
 Taro-TOP popcorn-ACC five-min.-in eat-PAST
 Lit.: ‘Taro ate popcorn in five minutes.’

Note that like many other Japanese sentences, (6) is interpreted as a telic sentence despite the fact that the object NP ‘popcorn’ lacks an explicit delimiter. (6) is understood to mean that Taro ate some specific amount of popcorn identifiable in the context, say a bag of popcorn, in five minutes. In order to use the expression ‘in five minutes’, what Taro did must be describable in terms of a telic event predicate such as ‘eating a bag of popcorn’ or ‘eating the popcorn he bought’. This means that in (6) the expression *poppukoon* ‘popcorn’ is interpreted as if it is quantized.

As for motion verbs and change of state verbs, Ramchand proposes an analysis of their semantic properties by extending Krifka’s system. If I understand Ramchand correctly, her conclusion is that they are all dynamic in some sense and, therefore, can be delimited in some way. With motion verbs, various temporal parts of the event in question match spatial paths of objects; with change of state verbs, the time line of the event corresponds to the “property degree path” (the term used by Ramchand). Ramchand notes that verbs such as ‘look’ (as in ‘The sea looks black’) are incompatible with the perfect because they are inherently stative and cannot be delimited in any natural way. Thus, Ramchand’s proposal about motion verbs and change of state verbs, which is a straightforward extension of what Krifka’s original proposal, seems to be on the right track. However, this also means that in order to turn those VPs containing a motion verb or a change of state verb into telic predicates, an overt or covert delimiting expression (e.g. ‘to the store’) must be supplied. For example, Ramchand states (note 17 on p. 46) that an activity verb ‘fish’ does not occur in the simple past felicitously “unless an explicit path or endpoint is provided.” Although Krifka’s original proposal cannot account for the semantic effect that expressions like ‘to the store’ have upon the VPs that contain them, it is easy to see how it should be modified to account for it.

In order to produce the right interpretations for various verb classes discussed above, we need to propose rules like (7a–c).

- (7) a. The SGaelic verbal expression ‘eat apple(s)’ in the perfect (or in the simple past) translates into $\lambda e \exists x [\forall y [(P(y) \wedge \text{apples}(y)) \leftrightarrow y \text{ is part of } x] \wedge \text{eat}(e) \wedge \text{PAT}(e, x)]$, where P is a variable for sets of individuals and its value is supplied by the context.
- b. The SGaelic verbal expression ‘push a cart’ in the perfect (or in the simple past) is required to contain a covert expression that delimits the spatial trace of the event of the form ‘from y to z ’ and translates into $\lambda e \exists x [\text{push}(e) \wedge \text{baby carriage}(x) \wedge \text{THE}(e, x) \wedge \text{spatial-path}(e, y, z)]$, where $\text{spatial-path}(e, y, z)$ reads ‘the spatial trace of e extends from y to z ’, and the values of y and z are supplied by the context.
- c. The SGaelic verbal expression ‘yellow’ in the perfect is required to have an implicit expression that delimits the property degree path of the event of the form ‘from y to z ’ where y and z are designations of different shades of yellow and translates into $\lambda e \exists x [\text{yellow}(e) \wedge \text{property-path}(e, y, z)]$, where $\text{property-path}(e, y, z)$ reads ‘the property path of e extends from y to z ’, and the values of y and z are supplied by the context.

With the help of covert delimiting expressions posited in (7a–c), an extended version of Krifka’s proposal would account for the fact that all sentence in the perfect or in the simple past must receive telic interpretations. This is not a very revealing account because it presupposes the existence of delimiters that are never realized phonetically. However, it is not clear how one can interpret some event as a telic event in any other way. What I have proposed here is one possible way of enforcing Ramchand’s constraint given in (5a), and it is a straightforward extension of Krifka’s (1992) system. However, I am not certain that this is what Ramchand had in mind.

For the sake of argument, let us consider a different way of interpreting the constraint (5a). Assume that (5a) is understood in such a way that the original denotation of AspP is

“paired down” without being aided by a delimiting expression so that the resulting set has the property STP. For example, given the set of events described by the predicate *push a cart*, one could form a new set by selecting the “maximal continuous events” out of the given set of pushing-a-cart events. That is, we can use the set $\{e \mid e \in \llbracket \text{pushes a cart} \rrbracket \text{ and there is no } e' \supseteq e \text{ such that } e' \in \llbracket \text{pushes a cart} \rrbracket \text{ and the temporal trace of } e' \text{ is an interval}\}$ as the denotation of a [+ bounded] AspP. This set of events has the property STP. This does not agree with our intuitions, however. Each event in this set of events corresponds to a maximal continuous pushing of a cart by John, which does not guarantee that it can be described (or should be described) by a telic expression in the object language. For example, some such events may have been terminated abruptly as a result of interruptions and may have reached no clear goal as such. Thus, there is good reason to believe that the process of constraining the meaning of a [+ bounded] AspP must be made in terms of some (covert) delimiting expression as shown in (7a–c).

Now let us turn to the other half of Ramchand’s story, which concerns the explanation of the fact that a SGaelic sentence in the imperfect is obligatorily interpreted as atelic. As mentioned earlier, what is interesting about the imperfect in SGaelic is that this verbal form requires genitive Case on the object NP. Drawing on de Hoop (1992), Ramchand distinguishes between strong Case-marked NPs and weak Case-marked NPs in terms of their semantic type. Ramchand’s claim is that the direct Case marked on object NPs is a strong Case, whereas the genitive Case marked on object NPs is a weak Case. On the basis of this difference regarding Case marking, Ramchand proposes that genitive Case-marked object NPs are expressions of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$. The idea is that genitive Case-marked object NPs behave like predicate modifiers on a par with manner adverbs exemplified by *fast*, *soundly*, and *quickly*. It is generally assumed that in addition to being expressions of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$, these adverbs conform to the semantic constraint (“meaning postulate”) of the form given in (8).

- (8) Any manner adverb ADV α must be such that for any set A, $\llbracket \alpha \rrbracket(A) \subseteq A$

For example, (8) ensures that *John runs fast* entails *John runs*. That is, a manner adverb serves to reduce a set of individuals to its subset. I think Ramchand intends to do something similar here regarding genitive Case-marked NPs. Since the system Ramchand assumes is event-based, the type associated with genitive Case-marked NPs would have to be more complicated than $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$. First, assume that each verbal predicate that occurs in the imperfect is an expression of type $\langle e, \langle ev, t \rangle \rangle$, where *ev* is a type for events. Second, let a genitive Case-marked object NP that occurs with a verbal predicate in the imperfect to be of type $\langle\langle e, \langle ev, t \rangle \rangle, \langle e, \langle ev, t \rangle \rangle\rangle$. From what Ramchand states on p. 156, her ideas can be symbolized as in (9).

- (9) ‘of the fish’ $\Rightarrow \lambda \text{var}_{\langle e, \langle ev, t \rangle \rangle} \lambda x \lambda e [\text{var}_{\langle e, \langle ev, t \rangle \rangle}(x)(e) \wedge \text{of-the-fish}(e)]$
‘eating’ (verbal noun) $\Rightarrow \lambda x \lambda e [\text{eat}(e) \wedge \text{AGENT}(e, x)]$
‘eating of the fish’ $\Rightarrow \lambda \text{var}_{\langle e, \langle ev, t \rangle \rangle} \lambda x \lambda e [\text{var}_{\langle e, \langle ev, t \rangle \rangle}(x)(e) \wedge \text{of-the-fish}(e)](\lambda x_1 \lambda e_1 [\text{eat}(e_1) \wedge \text{AGENT}(e_1, x_1)])$, which is equivalent to
 $\lambda x \lambda e [\text{eat}(e) \wedge \text{AGENT}(e, x) \wedge \text{of-the-fish}(e)]$

Note: var_a indicates a variable of type *a*, where *a* is any type.

Given the final translation in (9), we can show that for any individual *a*, $\llbracket \lambda x \lambda e [\text{eat}(e) \wedge \text{AGENT}(e, x) \wedge \text{of-the-fish}(e)] \rrbracket(a)$ is a subset of $\llbracket \lambda x \lambda e [\text{eat}(e) \wedge \text{AGENT}(e, x)] \rrbracket(a)$, which is what Ramchand wants. I think Ramchand adopts this approach because she believes that genitive Case-marked object NPs do not have an “aspectual role.” However, it is not clear what is gained by introducing a different logical type for genitive Case-marked NPs. First, this proposal apparently requires two distinct types for the same transitive verb. For example, ‘eat’ is of type $\langle e, \langle e, \langle ev, t \rangle \rangle \rangle$ when it is used in the simple past or in the perfect, whereas it is of type $\langle e, \langle ev, t \rangle \rangle$ when it is in the imperfect. There may be a way

of avoiding this consequence. However, I am not sure if this complication is warranted even if it turns out to be harmless. Second, the translation obtained in (9) is not guaranteed to have a cumulative reference unless the semantic role of ‘of the fish’ is made clear. And third, there are more straightforward ways of explaining the special roles played by the morpheme *ag* and genitive Case-marked NPs in SGaelic.

One possibility is to make explicit the observation that a genitive Case-marked NP receives a partitive interpretation by letting the NP have a cumulative reference property. This strategy is suggested by Krifka (1992) in connection with partitives in German and Finnish. For example, we can let a genitive Case-marked object NP *an apple* to mean ‘a sub-part of an apple’, which clearly has the cumulative reference property. Then it is clear that the predicate of events given in (10) is cumulative.

- (10) ‘John be eating of the apple’ (imperfect) \Rightarrow
 $\lambda e \exists y \exists x [\text{AGENT}(e, j) \wedge \text{eating}(e) \wedge \text{an apple}(x) \wedge y \text{ is part of } x \wedge \text{PATIENT}(e, y)]$

Thus, (10) accomplishes what Ramchand intends to do with her own proposal.

Another possibility is to regard the imperfect aspect morpheme *ag* as something analogous to a progressive operator. A proposal about the progressive is also found in Krifka’s (1992) proposal. That is, we can propose (11) for the imperfect morpheme *ag*.

- (11) *ag* translates into $\lambda P \lambda e_1 \exists e_2 [P(e_2) \wedge e_1 \text{ is part of } e_2]$ (where *P* is a variable for predicates of events.)

This combines with a predicate of events (e.g., ‘eat an apple’) to yield a cumulative predicate as shown in (12).

- (12) ‘John be eating of the apple’ (imperfect) \Rightarrow

$\lambda \text{var}_{\langle e, \langle ev, t \rangle \rangle} \lambda z \lambda e_1 \exists e_2 [\text{var}_{\langle e, \langle ev, t \rangle \rangle}(z)(e_2) \wedge e_1 \text{ is part of } e_2] (\lambda y \lambda e \exists x [\text{AGENT}(e, y) \wedge \text{eat}(e) \wedge \text{an apple}(x) \wedge \text{PATIENT}(e, x)])(j)$, which
 lambda-converts into
 $\lambda e_1 \exists e_2 [\exists x [\text{AGENT}(e_2, j) \wedge \text{eat}(e_2) \wedge \text{an apple}(x) \wedge \text{PATIENT}(e_2, x)] \wedge e_1 \text{ is part of } e_2]$

If we ignore the complication having to do with the so-called “imperfect paradox” (Dowty 1979), (12) produces the same truth conditions as (10). Thus, (12) also accounts for the SGaelic data.

In sum, Ramchand’s book presents a very interesting syntactic analysis of the intriguing data in SGaelic aspectual constructions. It is one of the first attempts to investigate the effects of Case marking and syntactic positions of NPs on the temporal constitution of the VPs and sentences that contain them. Although I find the details of her semantic proposal less than definitive, it contains enough substance to make it an important contribution to the study of tense and aspect and its relation to the semantics of nominal expressions.

Acknowledgment

I would like to thank Manfred Krifka for discussions about his work. All inadequacies are my own.

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