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# Inner Tense and the Realisation of Aspect

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Travis (1991) proposes a functional category occurring between two VP projections in a single clause. This projection, which she labels ASP2, is responsible for two things: the specification of the aspectual property of completion, and the assignment of Case to derived objects in certain languages. What is most interesting about this category, for the purposes of this paper, is that it seems to be, at least in some languages (Igbo in particular), a tense projection. Citing Dechaine (1991), Travis shows that in Igbo, a single morpheme *ga* marks both future tense and progressive aspect. She shows that a unified treatment of *ga* is possible, as follows. *Ga* means, essentially, irrealis. When it originates in the outer tense projection, with scope over the entire event, it has the effect of making the whole event unrealized, i.e. future. When it occurs in the inner tense projection, ASP2, it marks only the state resulting from the event as unrealized, giving a non-complete, or progressive, meaning.

In a number of recent papers (Cowper, 1991a, 1991b, 1991c), I have argued that the past and present participial suffixes in English ought to be analyzed as non-finite tense morphemes. The past participial suffix *-en* is a past tense marker, placing the event it governs earlier in time than the governing auxiliary verb, while the present participial suffix *-ing* is a present tense marker, placing the event it governs at the same time as the governing auxiliary verb.

I proposed the D-structures in (2) for the sentences in (1).

(1) a. Judith is reading the book.
b. Ruth has coloured the picture.

I have not indicated the various movements that apply in order to simplify the representation.

What is labelled participle phrase, or PrP, in (2), corresponds to Travis's ASP2, which she ultimately comes to call 'inner tense'. I will also refer to this functional category as the inner tense projection.

I would like to consider how *-en* and *-ing* in English fit into the picture drawn by Travis, and how inner tense and aspect are related.

First of all, note that in (2) the inner tense projection has scope over both the internal and the external arguments of the main verb. This contrasts with the structure Travis implicitly assumes for Igbo, in which the inner tense projection has scope over only the internal arguments of the verb. It is thus not obvious from the structures in (2) how we are to capture the special role of the direct object in determining the aspectual structure of an English sentence.

Second, note that in neither of the sentences in (1) does the direct object move to the specifier position of the inner tense projection. In both constructions, the object receives Case in its D-structure position. In fact, it is entirely unclear, at least for the sentences depicted in (2), that there needs to be a specifier position in the inner tense projection at all.

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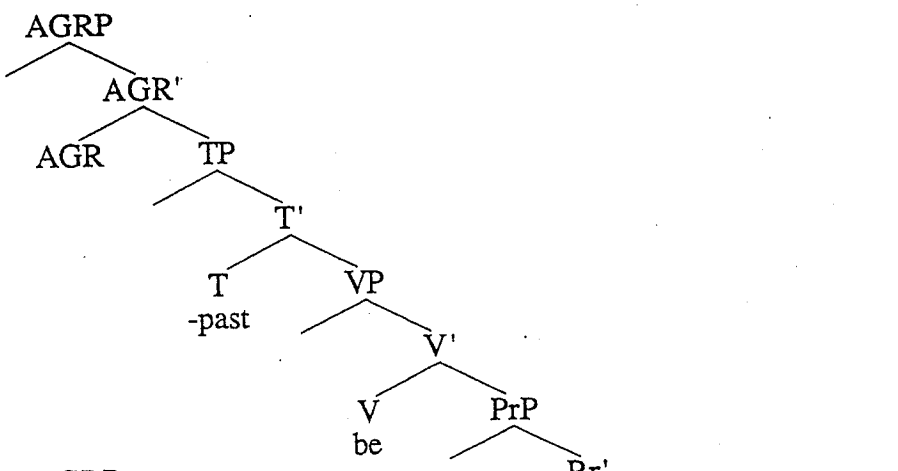
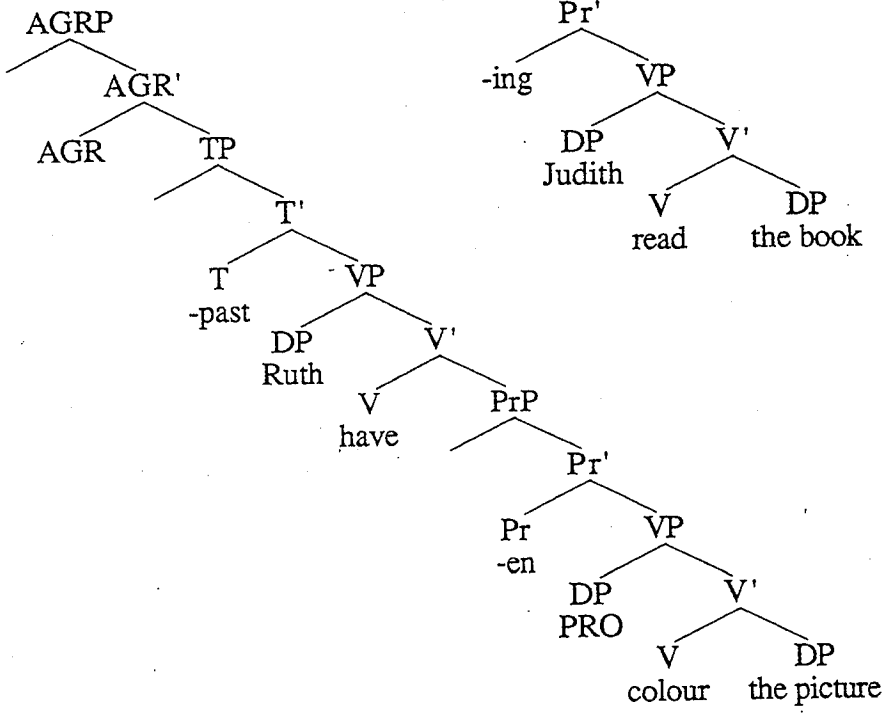
(2) a.




b.




Since Travis proposes, at least implicitly, that the aspectual role of the direct object is due to its having some kind of relationship, perhaps a spec-head agreement relation of some sort, with the head of an inner tense projection, the question of what, if anything, shows up in the specifier of inner tense needs to be investigated.

The structure of this paper, then, is as follows. First, I will show that in English, the aspectual property of completion is independent of the presence or absence of an inner tense node. Second, I will show that the presence of a filled specifier position in the inner tense projection depends entirely on the element's need for Case, and has nothing to do with aspectual considerations. Then, I will turn to the English progressive construction, and compare it to the Hungarian perfective. Finally, I will make some general remarks about aspect and the ways in which it can be realized. I turn now to completive aspect in English.

The sentences in (3) are in the simple past tense, and as such lack an inner tense node.

(3) a. Mary resembled her mother. (state, individual level)
b. Mary sneezed. (point event)
c. Mary arrived. (achievement)
d. Mary peeled the apple. (accomplishment)
e. Mary peeled applies. (process)

Whether or not the sentence is interpreted as completive depends entirely on the aspectual properties of the verb, taken together with its arguments. (3b-d) have a completive reading, while (3a) and (3e) do not. The same readings obtain in (4), where there is an inner tense node.

(4) a. Mary has resembled her mother (on occasion).
b. Mary has sneezed.
c. Mary has arrived.
d. Mary has peeled the apple.
e. Mary has peeled apples.

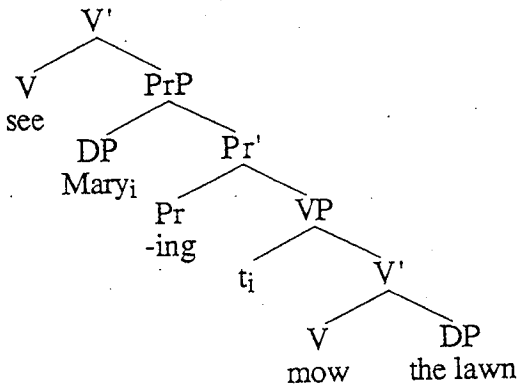
Again, the aspectual properties of the sentence derive primarily from the verb and its arguments, not from any functional category.

Let us now consider the specifier position in the inner tense projection. I have found constructions in which it is filled, illustrated in (5).

(5) a. We saw Mary mowing the lawn.
b. Sue had the lawn mowed.

The structure of (5a) is partially given in (6). Structure above the D-structure position of *see* has been omitted to save space.

(6)



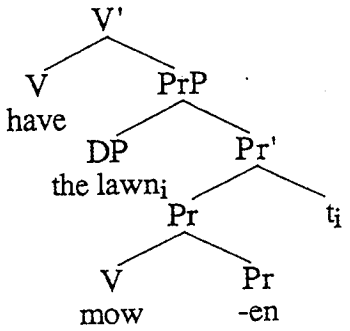

*Mary* moves to the specifier position of the inner tense projection in order to receive Case from *see*. First, we should note that the moved argument is a subject, not an object, in its own VP. Second, note that the aspect of this sentence depends, not on the nature of the moved NP, but rather on the nature of the object in the lower VP. Compare the sentences in (7).

(7) a. We saw Mary washing the car.
b. We saw Mary washing cars.
c. We saw children washing the car.
d. We saw children washing cars.

Thus while it appears that the specifier position of the inner tense projection is indeed a landing site for movement, there is no necessary aspectual role for the moved NP.

Now consider (5b). Its structure is slightly different from the perfect construction we saw in (2b), as shown in (8).

(8)

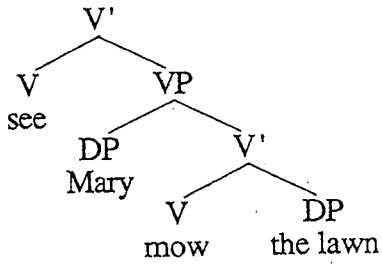



I have argued elsewhere (Cowper, 1991a, 1991c) that passive participles are formed by D-structure adjunction of a verb to the *-en* morpheme, while perfect participles are formed when *-en* takes an entire VP as its complement. D-structure affixation of *-en* absorbs the verb's structural Case and the external θ-role. The object must therefore move to receive Case. In this example, movement is to the inner tense specifier position, and Case is assigned by *have*.

Arguments will move to the specifier position of inner tense in English provided two conditions are satisfied. First, the element must need Case, and second, there must be a Case-assigner heading the projection immediately dominating inner tense. The argument has no more or less aspectual force when moved than when it remains in the VP. This calls into question, not the aspectual role of the direct object, but rather the aspectual role of inner tense.

I should also point out that there is nothing special about the inner tense projection in terms of Case assignment. Consider (9), which is in some respects similar to (5a).

(9) I saw Mary mow the lawn.




The only difference between (9) and (5a) is that (9) lacks an inner tense projection. In both sentences, *Mary* receives Case in precisely the same way, from *see*.

What I would like to do now is to turn to the English progressive construction, and compare it to the Hungarian perfective construction. From these two phenomena I will develop a preliminary theory of aspect, and propose a parameter which, if correct, could have fairly wide implications.

Again going back to earlier work (Cowper, 1991a, 1991b, 1991c), I assume that *-ing* is basically a present tense morpheme, in that it places the event or state it governs at the same time as that of the higher verb. In addition, I proposed that *-ing* places a selectional restriction on the temporal structure of the event or state it governs. This selectional restriction requires that the governed event be represented in the temporal representation of the sentence as extending over an interval, rather than a point, in time. Depending on the aspectual properties of the event or state involved, this selectional restriction will have different effects. In previous work I focussed exclusively on

accomplishments, but now would like to look at other aspectual classes as well.

With accomplishments, *-ing* has the effect of forcing a fine-grained representation of the event, such that the beginning, middle and end of the event are distinct. Compare (10a), with *-ing* to (10b), which lacks *-ing*.

(10) a. We saw Ruth eating the orange.
b. We saw Ruth eat the orange.

In (10a), we observed some subinterval of the interval of time during which the orange-eating took place. In (10b), we observed the entire event of orange-eating, and nothing in the sentence requires that the event of orange-eating be seen as taking place over an interval of time. If we assume, following Jackendoff (1987, 1991), that any point in time can be expanded into a bounded interval, and that any bounded interval can be taken as a point, then these facts follow automatically. Accomplishments take place over a bounded interval in time. The participial affix *-ing* forces the interval representation of "Ruth eat the orange," while without *-ing*, we are free to represent the event as taking place at a point in time.

With states and processes, *-ing* has essentially no aspectual effect, as shown in (11).

(11) a. Resembling his mother as he does, he could never sneak into the family reunion party undetected. (He resembles his mother)
b. I saw Mary peeling apples/I saw Mary peel apples.

Since states and processes always extend over an interval in time, the selectional requirement imposed by *-ing* is satisfied without any change in interpretation.

With achievements and point-events, two possibilities arise. One is that the event is given a very fine-grained representation, with a distinct beginning, middle and end, so that it essentially amounts to an accomplishment. The second possibility is that the event is pluralized, or understood as occurring repeatedly, giving a process reading. Both possibilities are available for (12).

(12) The light was flashing...
a. during the three microseconds that the alien spacecraft was hovering over the house.
b. during the whole interview.

It appears, then, that in *-ing* we have a functional head with aspectual properties. Note, however, that its aspectual force derives, not from a feature specification, or from any temporal structure inherent to *-ing*, but rather from a selectional restriction it imposes on its complement. The selectional restriction can be satisfied in a number of ways, depending on the aspectual properties of the governed VP.

We will now look at a similar phenomenon in Hungarian. Hungarian has a number of particles which appear either as verbal prefixes, or under some circumstances as free morphemes in a post-verbal position. Most of these particles have some sort of directional meaning, as illustrated in (13).

(13) ki 'out'
be 'in'
le 'down'
fel 'up'
át 'through'

In addition to the directional particles, there is one, *meg*, which has no directional

meaning, and which is often glossed as 'perfective'. In order to simplify the discussion, I will restrict attention to *meg*, although the other particles also have a perfective force.

Interestingly, *meg*, like *-ing*, has effects which depend on the aspectual properties of the verb phrase it appears with. With accomplishments, it forces a coarse-grained reading, giving the event a temporal representation like that of a point-event. This is shown in (14).

(14) a. János irta a könyvet
John write-PAST-3sg-def the book-ACC
'John was writing the book'
b. János megirta a könyvet
John *meg*-write-PAST-3sg-def the book-ACC
'John wrote the book'

With achievements, *meg* has no discernible effect on the meaning, but normally occurs, as in (15). (15b) is the more commonly used form, but (15a) is grammatical.

(15) a. érkezett
arrive-PAST-3sg
'He arrived'
b. megérkezett
*meg*-arrive-PAST-3sg
'He arrived'

With point-events, *meg* behaves in much the same way as it does with accomplishments, as shown in (16).

(16) a. János ütötte a labdát
John hit-PAST-3sg-def the ball-ACC
'John was hitting the ball'
b. János megütötte a lábdat
John *meg*-hit-PAST-3sg-def the ball-ACC
'John hit the ball'

Finally, with states, and with process VPs, *meg* is ungrammatical, as shown in (17).

(17) a. János irt könyveket
John write-past-3sg books
'John was writing books/John wrote books'
b. * János megirt könyveket

The picture with states and processes is somewhat complicated by the existence of a number of lexicalized verb-particle expressions, some of which are shown in (18).

(18) a. szeretni 'to like, love'
megszeretni 'to fall in love with'
b. úszni 'to swim'
megúszni 'to escape'
sthg 'to squeak through'
c. nö:ni 'to grow'
megnö:ni 'to grow up'

In order to understand what *meg* is doing, we first need to make explicit a difference between Hungarian and English. Notice that in Hungarian, a sentence containing

an accomplishment VP in the simple past tense is interpreted as extending over a region of time, while in English, the same construction is interpreted as a point event. Thus, the Hungarian simple past in (14a) is best rendered by the English past progressive, while the English simple past must be translated, as in (14b), by the Hungarian perfective form. This difference in the interpretation of accomplishments extends throughout the tense system, so that the Hungarian simple present is best translated by the English present progressive, and the Hungarian future is best translated by the English future progressive. The English simple tenses must always be translated by a Hungarian perfective.

Suppose that there were a parameter, having to do with the default interpretation of temporal structures. Suppose that whenever possible, Hungarian represents a temporal structure as extending over an interval of time, while English does exactly the opposite: it represents a temporal structure as a point in time whenever possible. Assuming that Jackendoff was right in claiming that a point in time can always be represented as a bounded interval, and that a bounded interval can always be represented as a point, this supposition predicts, correctly, that for accomplishments and for point-events, the Hungarian simple tenses will correspond to the English progressives. For achievements, which according to Pustejovsky (1988) are similar to accomplishments except that the final point is more salient, the prediction is that the Hungarian simple tenses will not differ significantly from the English simple tenses. The same is true for states and processes: since both of these correspond to unbounded intervals, both English and Hungarian will represent them as intervals, and the simple tenses will have roughly the same meanings.

Returning now to *meg*, suppose that like *-ing*, it imposes a selectional restriction on the VP it governs. Unlike *-ing*, however, the selectional restriction it imposes is that the governed event be represented as a point in time. As with *-ing*, the particular effect *meg* has on a sentence will depend on the aspectual structure of the verb phrase. For accomplishments and point-events, the prediction is that *meg* will simply force the choice of a point representation, giving results much like the English simple tenses. This prediction is borne out. For states and processes, the prediction is that *meg* should be ungrammatical, since an unbounded interval cannot be represented by a point in time. This prediction is also correct. With achievements, the prediction is that *meg* will give a point representation for the event. This is also correct. The difference is minimal because of the salience of the endpoint of the interval associated with achievements.

Notice that in the case of *meg*, it is important that it merely impose a selectional restriction on its governed VP, rather than overriding or altering its temporal structure. If *meg* could alter the temporal structure of a VP, we would expect that it should occur with state and process VPs, giving them some kind of punctual reading. This is not the case. If, on the other hand, *meg* simply imposes a selectional restriction on the VP it governs, then any VP which cannot be taken occurring at a point in time will violate the selectional restriction, and the sentence will simply be ungrammatical.

We have now looked at two aspectual morphemes, *-ing* in English and *meg* in Hungarian. We saw that in both cases, the aspectual effect of the morpheme is due to a selectional restriction it imposes upon the VP it governs. In the case of *-ing*, we said that *-ing* was basically a tense morpheme. That is, its semantic content is that of a tense morpheme, while its selectional restriction gives the aspectual force. What about *meg*? As I said earlier, *meg* is a member of a class of directional particles which have perfective force, except that *meg* has no directional meaning. Further work may reveal that *meg* has some semantic content apart from its aspectual selectional restriction, but so far I have not found any.

What does this mean for the functional category of aspect? I believe that there is no need for such a category, at least for English and Hungarian. The aspect of a sentence is derived from its temporal structure, whether the sentence has the structure of a point, a bounded interval, an unbounded interval, an unbounded series of points, and so on. This structure is compositionally derived from the verb, its arguments, any relevant adjuncts, and to a certain extent the tense morphemes, which link smaller temporal structures together

to form larger ones. Any morpheme which can govern a VP can, in principle, place selectional restrictions on that VP. Since one of the properties of a VP is its temporal structure, there is no reason that selectional restrictions cannot hold of temporal structure. Aspectual morphemes will, I suspect, in general turn out to be morphemes of various categories, with various meanings, all of which have temporal selectional restrictions associated with them.

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