

# Nouns Affect Aspect Syntactically

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## 1. Introduction: an aspectual asymmetry in English

Since Verkuyl (1972), we have known that, in some languages, the direct object DP can influence the (a)telicity of the verb phrase (VP). There is an aspectual influence of the noun (AIN) on the VP. This is illustrated in (1) by the *in/for*-adverbial (in)compatibility patterns.

- (1) a. John ate a cake            in 10 mins./\*for 10 mins.  
    b. John ate cake            \*in 10 mins./for 10 mins.

The starred *for*-adverbial in (1a) reflects standard judgments: in the presence of a DP direct object like *a cake*—which following terminology by Borer (2005) is referred to here as a Q(uality)-DP—with an *incremental theme* verb like *eat*, the VP is telic. In contrast, in (1b), with a mass noun direct object like *cake*—referred to here as a non-Q-DP—the VP is atelic. Although these are the patterns commonly noted, for over 20 years now, mainly in footnotes, it has been observed that there is an atelic grammatical interpretation of (1a) (see for instance Alsina 1999, Jackendoff 1996, Piñón 2008, Smollet 2005, Tenny 1987, Verkuyl 1993) illustrated in (2).

- (2) John ate a cake            for 10 mins. (but didn't finish it).

What we see here is that an atelic VP can arise in the presence of a Q-DP or a non-Q-DP direct object. This becomes important when we observe that a telic VP only arises in the presence of a Q-DP, never in the presence of a non-Q-DP (Piñón 2008).<sup>1</sup> That is, there is no telic interpretation available for (1b). This leads to a key observation: there is an asymmetry in the AIN. This is represented in terms of (in)compatible combinations of (a)telic VPs + (non-)Q-DPs in (3):

- (3) a. Telic VP + Q-DP            c. Atelic VP + Q-DP  
    b. \*Telic VP + non-Q-DP      d. Atelic VP + non-Q-DP

Since Verkuyl's (1972) observation that the AIN exists, there have been both semantic (Krifka (1989, 1992), Jackendoff (1996), Piñón (2008), Verkuyl (1972, 1993)) and syntactic (Borer (1994, 2005), van Hout (2000), MacDonald (2008a,b), Ritter & Rosen (1998, 2000), Travis (1991, 2000, 2010)) accounts. This leads to the following question: where is the AIN best handled? In the semantic component or in the syntactic component? In this paper, I offer an answer to this question by taking the aspectual asymmetry just observed as an evaluation metric of existing (prominent) semantic and

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<sup>1</sup> The present discussion is limited to incremental theme verbs. Landman & Rothstein (2010) discuss one potential counterexample to this observation: *Tolkein invented hobbits in 2 hours*. They state that *invent* heads an accomplishment predicate and that there is a telic interpretation of the predicate on a *type* interpretation of *hobbits*. I think there are issues with *invent* being an accomplishment. First, note that as the complement of the aspectual verb *finish* the predicate is not grammatical (on the type interpretation of *hobbits*). *\*Tolkein finished inventing hobbits*. The complements of *finish* are reserved for accomplishment predicates (Dowty 1979, Freed 1979). Note also, that with the adverb *almost*, there is only an interpretation in which no invention of the type hobbits has taken place, not an interpretation in which the type hobbits started being invented, and were almost totally invented: *Tolkein almost invented hobbits*. This is unexpected for accomplishments, as illustrated by *John almost drank the pitcher of beer*. Moreover, note that it actually appears that on a type interpretation of a noun an atelic interpretation is possible. Imagine a context in which a world-renowned rice maker made some special rice for a party. Someone can say, *I ate his/the rice for hours. It was so good*, in which it appears that it is the type of rice in question that is important (see Jackendoff 1996: 307 for similar observations). This, of course, is the opposite of what Landman & Rothstein claim.

syntactic accounts. I argue that existing syntactic accounts are better equipped to handle the asymmetry, and thus, there is an important role of syntax in the AIN.

The structure of the paper is as follows. In section 2, we see that although Slavic appears to show the opposite directionality of aspectual influence, from the VP to the direct object DP, Slavic stills shows the same aspectual asymmetry. In section 3, I evaluate two prominent semantic accounts: Verkuyl's (1993) feature-based approach and Krifka's (1989, 1992) mereological homomorphic mapping approach. We see that they need to add something beyond their basic assumptions to handle the aspectual asymmetry. In section 4, I evaluate two classes of syntactic accounts: MacDonald's (2008a,b) Agree with Asp approach and Borer's (1994,2005) Move to Spec,Asp approach. One fundamental aspect of Borer's approach, not intimately tied to Move to Spec,Asp, is key in accounting for the aspectual asymmetry. In section 5, we see that Agree with Asp seems to be the more adequate syntactic relation to capture the AIN and the aspectual asymmetry. In section 6, I note a final conundrum for syntactic approaches to the AIN. In section 7, I briefly recap the main claims of this paper.

## 2. The same aspectual asymmetry in Slavic

In Slavic, the direct object does not influence the (a)telicity of the VP (MacDonald 2008b, Schoorlemmer 1995). The lack of the AIN in Slavic is illustrated by the patterns in (4).

- (4) a. *Mary čitala knjigu/poèziju \*za čas/v tečeniji časa.*  
 Mary read-IMP book/poetry \*in hour/during hour  
 "Mary read a/the book/(the) poetry \*in an hour/for an hour."
- b. *Mary pročitala knjigu/poèziju za čas/\*v tečeniji časa.*  
 Mary read-PERF book/poetry in hour/\*during hour  
 "Mary read a/the book/the poetry in an hour/\*for an hour."

When the verb is in imperfective as in (4a), the VP is atelic and when the verb is in perfective as in (4b), the VP is telic.<sup>2</sup> In each case, we see the same range of direct object types, yet these play no role in the (a)telicity of the VPs. In contrast to English, Slavic appears to show the inverse directionality of aspectual influence. The (a)telicity of the VP influences the interpretation of the direct object DP (Borer 2005, Filip 2000, Krifka 1992). Concretely, with telic VPs, only a Q-DP interpretation of the internal argument is available, illustrated in (5) by Czech from Krifka (1992:49).

- (5) Ota vypil víno.  
 Ota drank the wine/\*wine

We find the same observations concerning Serbo-Croat: mass nouns in telic contexts are interpreted as bounded (Arsenijević 2006: 134).<sup>3</sup>

- (6) Jovan je po-pio vod-e.  
 Jovan AUX over-drank water-GEN  
 'Jovan drank up some water.'

Moreover, it has been observed that, in Bulgarian, a Slavic language with determiners, the a determiner must be present when the VP is telic (Slabakova 1997, MacDonald & Markova 2010,

<sup>2</sup> It is not the case that there is a one-to-one correspondence between (im)perfectivity and (a)telicity and I am not attempting to claim that there is. The patterns observed in (4) hold for atelic VPs whether perfective or imperfective and for telic VPs whether perfective or imperfective. The important point here is the (a)telicity of the VPs and the interpretation of the direct objects.

<sup>3</sup> Arsenijević (2006: 137) states that "...the intuition is always that the actual Undergoer of the eventuality is not the whole denotation of this genitive NP, but only a nonspecific **bounded** part of it." Bolding is the present author's.

Markova 2007), illustrated by data from MacDonald & Markova (2010):<sup>4</sup>

- (7) Ivan iz-pi kafe-\*(to)/edna čaša kafe #edin čas /za edin čas.  
Ivan iz-drunk coffee-\*(the)/a cup of coffee #one hr./in one hr.  
'Ivan drank \*(the) coffee/a cup of coffee #for 1 hr./in 1 hr.'

In contrast, as Borer (2005 and references therein) discusses extensively, atelic VPs allow for both a Q-DP (i.e. *pet dopisu*) and a non-Q-DP (i.e. *vino*) interpretation, illustrated by Czech from (Borer 2005:164) in (8a) and (8b) respectively.

- (8) a. Pil<sup>l</sup> víno, co mu jeho neunavny hostitel stale doleval<sup>l</sup>.  
drank.3SG wine that ...  
'He drank (of) the wine that his tireless host kept pouring.'
- b. Psal<sup>l</sup> pet dopisu.  
wrote.3SG five letters

Observe also in Bulgarian that both a Q-DP (i.e. *edna čaša kafe*) and non-Q-DP (i.e. *kafe*) interpretation is available when the predicate is atelic.

- (9) Ivan pi kafe /edna čaša kafe edin čas/#za edin čas. → Bulgarian  
Ivan drank coffee/a cup of coffee one hour/#in one hour  
'Ivan drank coffee/a cup of coffee for an hour/#in an hour.'

In summary, when the VP is telic in Slavic, there is only a Q-DP interpretation of the direct object available, and when the VP is atelic, there is both a Q- and a non-Q-DP interpretation available of the direct object. This is the same aspectual asymmetry found in English, and it can be represented by the same (a)telic VPs + (non-)Q-DP combinations used for English from (3), repeated below in (10).

- (10) a. Telic VP + Q-DP                      c. Atelic VP + Q-DP  
      b. \*Telic VP + non-Q-DP            d. Atelic VP + non-Q-DP

The conclusion to be drawn here is that both Slavic and English show the same aspectual asymmetry, since in neither case is the Telic VP + non-Q-DP combination available, while all others are. Interestingly, the aspectual asymmetry is the same even though there appears to be a difference in the directionality of aspectual influence. In Slavic it is from the VP to the DP and in English it is from the DP to the VP. We can conclude, then, that the aspectual asymmetry is independent of the directionality of aspectual influence. This raises a question regarding the status of directionality of aspectual influence. Perhaps it is illusory. I leave this question for further research and pursue the source of the aspectual asymmetry in the following sections. In concrete, does the semantics component or the syntactic component best handle this aspectual asymmetry?

### 3. Can current semantic accounts of the AIN handle the aspectual asymmetry?

In this section, I discuss two influential semantic accounts of the AIN: Verkuyl (1993) and Krifka (1989,1992).<sup>5</sup> Semantic accounts all attempt to account for the telic-atelic alternation indicative of the AIN directly, in the semantic component. I begin with Verkuyl (1993), who proposes two types of features to derive the AIN: those associated with the verb (i.e. +/- ADD TO) and those associated with the DP (i.e. +/- SQA). According to Verkuyl's *Plus Principle*, only when there are two plus values can a VP be telic. This is illustrated in (11).

<sup>4</sup> The obligatory presence of the determiner is limited to incremental theme verbs, as illustrated by these prefixed verbs taking holistic themes: *S-mlja brašno #edin čas/za edin čas*. 'He ground flour #for an hour/in an hour.'

<sup>5</sup> I do not discuss Piñon (2008) nor Jackendoff (1996) explicitly here, but see MacDonald (2010) for a discussion of their difficulties in handling the aspectual asymmetry under discussion.

- (11) a. John ate a chicken. → [+ADD TO] & [+SQA] = telic  
 b. John ate chicken. → [+ADD TO] & [-SQA] = atelic  
 c. John owned livestock. → [-ADD TO] & [-SQA] = atelic  
 d. John owned a car. → [-ADD TO] & [+SQA] = atelic

Thus, for a sentence such as (11a), there is a [+ADD TO] verb with a [+SQA] DP. This can only result in a telic interpretation of the VP, given the plus principle. The problem for Verkuyl (1993) is at the heart of his analysis: the plus principle. Given the plus principle, the combination in (10c), an atelic VP + a Q-DP, which corresponds to (11a), cannot be derived, since there are all plus values.

Krifka (1989,1992) approaches the AIN in terms of a homomorphic mapping of mereological properties from the nominal domain to the event/verbal domain. Both the nominal and the event/verbal domain can be modeled in mereological terms. For instance, the DP *a chicken* and the VP *eat a chicken* are quantized since the denotation of the sum of *a chicken* and *a chicken* does not fall within the denotation of *a chicken*, but within the denotation of *2 chickens*; and the sum of the events described by *eat a chicken* and *eat a chicken* is not eat a chicken, but eat 2 chickens. In contrast, *chicken* and *eat chicken* are cumulative, precisely because the denotation of the sum of *chicken* and *chicken* falls within the denotation of *chicken*; and the sum of the events described by *eat chicken* and *eat chicken* is eat chicken. Quantized DPs give rise to quantized VPs, which lead to telic VPs; cumulative DPs give rise to cumulative VPs, which lead to atelic VPs. Thus, for a sentence like the one in (12), the result can only be a telic VP, due to the presence of the quantized DP *a chicken*.

- (12) John ate a chicken.

Like Verkuyl (1993), the combination in (10c) (i.e. atelic VP + Q-DP) will never arise in Krifka's system, since there is a quantized DP present, which due to the homomorphic mapping will always give rise to a telic VP. Another complication arises when reinterpreting (10b) and (10c) in mereological terms, shown in (13a) and (13b) respectively.

- (13) a. \* quantized (VP) & cumulative (NP) → (10) b. \* Telic VP + non-Q-DP  
 b. cumulative (VP) & quantized (DP) → (10)c. Atelic VP + Q-DP

On the one hand, the combination of quantized + cumulative is ungrammatical,<sup>6</sup> as in (13a), while on the other the same combination is grammatical, as in (13b). This is a contradiction. The problem here is that Krifka is relying too much on the directionality of aspectual influence. As noted above, however, the aspectual asymmetry is independent of the directionality of aspectual influence.

Thus it appears that semantic accounts do not fair well with the aspectual asymmetry. Minimally, something additional must be added in order to account for it within the present systems.

#### 4. Can current syntactic accounts handle the asymmetry?

All syntactic approaches to the AIN share one important aspect: They all assume that there is some aspectual functional projection, call it AspP, with which some DP establishes some syntactic relation; this configuration then provides instructions to the semantics component, resulting in the telic-atelic alternation indicative of the AIN. They differ on two accounts: (i) the location of AspP along the spine, and (ii) the exact syntactic relation established with AspP. I will not discuss the location of AspP (but will assume that it appears between *v*P and VP) and will only discuss the syntactic relation with AspP. I focus on MacDonald (2008a,b) who assumes that the AIN is

<sup>6</sup> Note that one may take sentences like *John wrote a sequence of numbers in 10 mins.* as a counterexample to the generalization that there can be no telic VP with a non-Q-DP. *A sequence of numbers* is cumulative, but the result is a telic predicate. These noun phrases are discussed extensively in Zucchi & White 1991. Their solution, simplifying radically, is to redefine the conditions under which a telic predicate arises such that these noun phrases have the relevant property to give rise to a telic VP.

syntactically instantiated via Agree with Asp and on Borer (1994,2005) who assumes Move to Spec,Asp.<sup>7</sup>

MacDonald (2008a,b) argues that the AIN is syntactically instantiated via Agree with Asp. When a Q-DP Agrees with Asp, the result is a telic VP and when a non-Q-DP Agrees with Asp, the result is an atelic VP. One immediate problem with this account is combination (10c), an atelic VP with a Q-DP, since a Q-DP should give rise to a telic VP. This particular implementation of Agree with Asp leads to this problem. Nevertheless we will come back to Agree in section 5.

Borer (1994,2005) proposes that only when a Q-DP establishes a Spec,Head relation with Asp does a telic interpretation arise; all else is atelic. This approach accounts straightforwardly for the aspectual asymmetry. Consider the patterns from (10) updated in (14) under Borer's system.

- |         |                      |                                     |                       |
|---------|----------------------|-------------------------------------|-----------------------|
| (14) a. | Atelic VP & Q-DP     | → [ ([ <sub>AspP</sub> Asp ])       | Q-DP ]                |
| b.      | Atelic VP & non-Q-DP | → [ [ <sub>AspP</sub> Asp ]         | non-Q-DP ]            |
| c.      | Telic VP & Q-DP      | → [ [ <sub>AspP</sub> Q-DP Asp ]    | <del>Q-DP ]</del>     |
| d.      | *Telic VP & non-Q-DP | → [ [ <sub>AspP</sub> non-Q-DP Asp] | <del>non-Q-DP ]</del> |

One key to the configurations in (14) is that a Q-DP can establish a relation with AspP as in (14c) giving rise to a telic VP, but it need not, as in (14a)—because it does not move to Spec,Asp or AspP is not there, indicated by the parenthesis around AspP in (14a)—in which case the VP is atelic. In this way an atelic VP with a Q-DP can be accounted for. Another key to the configuration, is that a non-Q-DP simply cannot establish any relation with AspP—either because it lacks the relevant features to check Asp (Borer 2005) or because it semantically incorporates (Borer 1994)—thus (14d) never obtains. A fundamental aspect of Borer's approach is that Q-DPs and non-Q-DPs are essentially different. They have different featural (or structural) make ups, such that only Q-DPs will be able to establish a relation with Asp, non-Q-DPs will never.

Borer's system accounts for the aspectual asymmetry of the AIN with two key properties: 1. A Q-DP need not establish a relation with Asp, since AspP may not be present, thus combination (10c), atelic VP + Q-DP, can arise. And 2. non-Q-DPs do not establish any relation with AspP, thus, combination (10b), a telic VP + non-Q-DP, will never occur. Under this approach, the syntax sets up a particular configuration that is then read off by the semantics as telic or atelic. In this respect, the syntactic component seems well-equipped to handle the aspectual asymmetry.

Note that these two key properties of Borer's account are not intimately tied to Move to Spec,Asp. We can still maintain them in an Agree account, such as that developed in MacDonald (2008a,b). We need only first assume that only Q-DPs Agree with Asp, while non-Q-DPs cannot, in which case a telic VP will never arise in the presence of a non-Q-DP, and second that if AspP is not present, a Q-DP will not Agree with it, thus an atelic VP can arise in the presence of a Q-DP.<sup>8</sup> If these two fundamental properties of Borer's system can be accommodated under an Agree account, the following question arises: Which relation with AspP do Q-DPs establish: Agree or Move? I put forth one argument against a Move to Spec,Asp approach in the next section.

## 5. Agree with Asp or Move to Spec?

Here I appeal to what Merchant (2001) calls *derived position islands* as an argument against Move to Asp as the syntactic relation that Q-DPs establish with Asp. Consider the derived islands in (15) from Merchant (2001: 185-187).

- (15) a. \*Which Marx brother did she say that [a biographer of \_\_\_ ],  
she refused to read?
- b. \*Which Marx brother did she say that [a biographer of \_\_\_ ]  
{is going to be published/will appear} this year?

<sup>7</sup> With respect to the movement of a DP for telic predicates and non-movement of a DP for atelic predicates, van Hout (2000) and Ritter & Rosen (1998, 2000) are fundamentally the same as Borer (1994).

<sup>8</sup> Note that given the nature of the semantic accounts discussed in section 3, it is not clear how these two fundamental aspects of Borer's system could be accommodated without major revision.

- c. \*Which Marx brother did she say that [a biographer of \_\_\_ ]  
 {interviewed her/worked for her}?

These are derived position islands because once a constituent moves, no extraction from it can take place. Thus we see that extraction cannot take place from a tropicalized constituent (15a), a passive/unaccusative subject (15b), or an unergative subject (15c). Moreover, observe in the contrast between (16a) and (16b) that when the logical subject is in its base position, extraction can take place:

- (16)a. \*Which candidate were [posters of *t*] all over town?  
 b. Which candidate were there [posters of *t*] all over town?

The expectation for an account of the AIN in terms of Move to Spec,Asp is that on a telic interpretation of the VP, extraction out of the DP that induces a telic interpretation of the VP should not be possible, since it would have moved to Spec,Asp to give rise to the telic VP; it would create a derived position island. Observe that extraction can take place out of such a DP:

- (17)a. What did John drink [a bottle of \_\_\_ ] in 10 mins. at the party?  
 b. What did Bill eat [a box of \_\_\_ ] in 30 seconds to win the competition?

Even on the three following distinct technical solutions to derived position islands, the same prediction holds for a Move to Spec account of the AIN. The first, Chomsky's (1986) GB account in terms of L-marking consists of two parts: 1. A lexical head; and 2. Theta-marking. An element that is L-marked receives a theta-role from a lexical head. An L-marked constituent is not an island for extraction; non-L-marked constituents are islands for extraction. Under this approach, the Move to Spec,Asp approach to the AIN predicts that the DP moved to Spec,Asp is an island for extraction, since Asp is not a lexical head and it does not assign a theta-role.

The second is Nunes & Uriagereka (2000), who appeal to a modified version of Kayne's LCA in combination with Uriagereka's (1999) multiple spell out approach to phases. The essence of the proposal is that in order to be able to linearize a complex phrase structure, constituents in specifier positions (and adjuncts), must be spelled out (in order for the LCA to apply) prior to being "plugged in" the structure. The result of being spelled out is that these constituents pattern with lexical items (or compounds) in being atomic, such that only the label (but nothing internal to the constituent) is available to undergo syntactic operations. Thus, extraction is ruled out.

The third is Takahashi (1994), who proposes the Uniformity Corollary on Adjunction (UCA), based on combining the assumptions of Shortest Move and Chain Uniformity. His UCA rules out extraction from subjects, for instance, since, in order to satisfy Shortest Move, *wh*-extraction out of a subject must adjoin first to the DP containing the *wh*-word before adjoining to TP and upwards to CP. The adjunction to DP results in a non-uniform chain (given adjunction to a part of a non-trivial chain, since the DP containing the *wh*-word had previously moved to subject position), ruling this derivation out. However, if the *wh*-word adjoins to TP, skipping DP to avoid the formation of a non-uniform chain, there is a violation of Shortest Move, and this derivation is ruled out as well.

Under any of these three technical solutions, the prediction is generated that if the AIN is syntactically Move to Spec,Asp, extraction from the Moved DP should not be possible. However, as we have seen, the facts from (17) show that this prediction is not borne out. No such prediction is generated if the AIN results from Agree with Asp.

## 6. A conundrum

Recall one key to accounting for the aspectual asymmetry: Q-DPs and non-Q-DPs are fundamentally distinct by having either a different set of features, different featural make up or different structures. I note here that this same key to getting the aspectual asymmetry gives rise to an empirical conundrum. If only a Q-DP has the property to establish a relation with AspP, then a non-Q-DP does not compete with a Q-DP for Agree with Asp. That is, there should be no intervention effects

between Q-DPs and non-Q-DPs. This entails that in a sentence like (18), a telic reading should be available, but it is not.

(18) John carried sand into a bedroom for an hour/\*in an hour.

Since the non-Q-DP *sand* should not intervene between the Q-DP *a bedroom* and Asp, it is not immediately apparent why *a bedroom* could not Agree with Asp giving rise to a telic VP. Note also that goal Ps are not typically islands for Wh-movement in English, suggesting that an appeal to the Q-DP being embedded within a PP as a reason for why it cannot Agree is not necessarily available (unless a constituent need not Agree before undergoing Move).

(19) What did John carry the sand into \_\_\_ ?

If both Q-DPs and non-Q-DPs could value Asp, there would be a straightforward solution to this datum, since the non-Q-DP is higher in the structure and would always value Asp. However, by allowing this we lose one fundamental aspect of Borer's account that allows us to explain the aspectual asymmetry discussed throughout this paper. This is the conundrum that datum in (19) gives rise to.

## 7. Recap

In this paper I have illustrated an aspectual asymmetry associated with the aspectual influence of the noun on the verb phrase. We have seen that this aspectual asymmetry is independent of the directionality of aspectual influence. That is, English, which shows an aspectual influence from the noun to the VP and Slavic, which shows the opposite, an aspectual influence from the VP to the noun, both illustrate the same aspectual asymmetry. Moreover, the aspectual asymmetry was applied as an evaluation metric to help decide whether the AIN is best handled in the syntactic or the semantic component. We concluded that the AIN, at least the asymmetry that it shows, was best handled in the syntactic component via a relation between a Q-DP and Asp, via Agree with Asp: Q-DPs can Agree with Asp, while non-Q-DPs do not.

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