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A Comparison of Two Papers on Adverbials

FREDRIK HEINAT

1 Introduction

This paper is a critical assessment of two papers dealing with circumstantial adverbials. Even though they are written within the framework of the Minimalist Program (Chomsky 1995; 1999; 2000), they differ in some basic assumptions concerning what needs explaining and what the phrase structure is.

The articles I have chosen are David Adger and George Tsoulas: *Aspect and lower VP Adverbials* (2000), and Satu Manninen: *Circumstantial Adverbials and the Theory of Antisymmetry* (2000). The reasons for choosing these articles are firstly, that they come to different conclusions about certain key aspects (see, below), and secondly, that they appeared quite recently and represent the latest research on adverbials. The aim of the paper is to give an overview of what a current theory of adverbials looks like, and to compare three key aspects of adverbials. The aspects are: licensing, hierarchical order, and linear order. The reason for focussing on these aspects is that they are, in a way, the common denominators of theories within this framework. It is not possible to have a theory (in the framework of the minimalist program) that does not include all three aspects.

The outline of the paper is as follows: in section two, in order to put the following discussions into a perspective, I will give a brief description of the Minimalist Program and the antisymmetry of syntax. The following section is a scrutiny of the articles. In the fourth section I will make a comparison between the theories, regarding their advantages and disadvantages concerning the aspects mentioned above. Finally, in the conclusion I will point to some further questions that are not answered or dealt with in the analyses presented.

2 The Minimalist Program and the LCA

The analyses are carried out within the framework outlined in Chomsky 1999 and 2000. What follows is a very short presentation of the framework.

Functional heads are assumed to have features that set up dependencies with formatives, i.e. lexical items, that the head c-commands. These dependencies are only formed when the functional head has uninterpretable features. These uninterpretable features are termed the *probe*. The probe searches for matching features within its c-command domain, and these matching features are called its *goal*. This relationship is constrained by locality conditions. This means that a probe can only form a relation with the closest goal in its c-command domain. The relation between a head H, specified with a probe, and a formative, specified with the goal, is called the H-associate relation. The formation of such a relation results in the deletion of the uninterpretable features involved in the relationship. Since it is the probe that is uninterpretable, the probe deletes. In addition to probes, heads may be specified with EPP features which are selectional, i.e. they involve category information. These features are also uninterpretable. An EPP feature is *satisfied* when a category of the appropriate featural specification is merged with the head bearing the feature. When an H-associate relation is set up, the XP determined by the goal of H's probe will be forced to merge with the projection of H, satisfying EPP. In this situation EPP deletes. The EPP feature is, in other words, a requirement on the XP to move to the projection of H.

The LCA refers to Kayne's (1994) *Linear Correspondence Axiom* (LCA). Kayne (1994: 3) argues that "... phrase structure in fact always completely determines linear order and consequently that if two phrases differ in linear order, they must also differ in hierarchical structure." The LCA postulates that asymmetric c-command inevitably leads to linear order of terminal elements. Asymmetric c-command is defined as: X asymmetrically c-commands Y iff X c-commands Y, and Y does not c-command X. To allow for adjunction structures Kayne introduces the distinction between segments and categories, building on May (1985). Under adjunction the two adjoined elements are segments of the same category. Kayne's (1994: 16) definition of e-command is that X e-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y. In short, the LCA postulates that phrase structures are built in such a way that asymmetric c-command leads to linear precedence, and that only binary left-branching is possible.

3 The theories

In order to put the comparison of the different aspects into a perspective, each subsection starts with an outline of the papers. In these outlines, the focus is on the data that the authors give, and the core questions that they try to answer. The basic questions that a theory wants to answer are, naturally, a crucial factor for what the shape of the theory will look like. Each subsection ends with a discussion. I will deal with the different theories in turn and all comparisons will be postponed to section four.

3.1 Adger & Tsoulas

The core points of Adger & Tsoulas' paper is that manner and space adverbials are licensed by functional structure. This structure is generated very low down in the verb phrase for independent semantic motivation. Manner adverbials are licensed by a light verb that encodes agentivity and space adverbials are licensed by a functional head that encodes telicity. The primary function of these heads is not to license adverbials but to license aspects of the featural composition of the direct object.

Adger & Tsoulas' first claim is that there is a clear link between manner and agentivity and structural accusative case. It is not possible to have a manner adverbial with a predicate that does not have an argument with the thematic role of agent, (1a and b) nor is it possible for predicates that do not assign structural accusative case to license manner adverbials (1c and d), (Adger & Tsoulas' (2) and (10)).

- (1) a. The pigs splashed mud carelessly on the wall
- b. *Mud splashed carelessly on the wall
- c. John had flu
- d. *John had flu worriedly

Adger & Tsoulas second claim is that a similar link exists between space adverbials and the telic modification of a clause. Certain verbs allow a locative preposition to drop. The result is, they argue, a change in the lexical aspect of the predicate: a predicate without the preposition denotes an action with an endpoint, as in (2) (Adger & Tsoulas' (14)):

- (2) a. They climbed up the mountain
- b. They climbed the mountain

In (2a) the predicate is atelic and in (2b) it is telic, i.e. it has an endpoint. Their conclusion is that the aspectual marking for atelicity is conveyed by means of locative syntax.

Concerning the hierarchical structure of adverbials, Adger & Tsoulas are content with establishing that manner and space adverbials are structurally lower than the surface position of the direct object. This is shown by binding effects, in (3) the quantified object can bind the pronoun inside the space adverbial. This is evidence for the direct object c-commanding the space adverbial.

- (3) Mary kissed every_i boy in his_i home

The relative order between manner and space adverbials is more complicated and Adger & Tsoulas say that the linear order seems to indicate that manner adverbials are closer to the verb than space adverbials, (4) (Adger & Tsoulas' (19) and (20))

- (4) a. We tortured the general slowly in the garden
b. ? We tortured the general in the garden slowly

Their claim is that (4b) is only wellformed with a prosodic break. With reference to Zubizarreta (1998), they claim that this break indicates that the space adverbial seems to have moved to the right, supposedly in the prosodic component of the grammar.

According to Adger & Tsoulas, basing their argument on Costa (1996), the strongest evidence pointing in the direction of a hierarchical order is the fact that PP arguments that are placed after a manner adverbial do not show any of the 'freezing' effects that are expected of PPs in extraposition. The extraposition is supposedly somewhere below the lowest vP. Adger & Tsoulas do not state what they mean with the term extraposition.

- (5) a. Which boy did she look quickly at a picture of t?
b. *Which boy did she look in the gallery at a picture of t?
c. *Which boy did she look in a sultry way at a picture of?

In (5a), where the PP argument, *at a picture of*, is to the right of a manner adverbial it is possible to extract out of the PP argument whereas in (5b) where it is to the right of a space adverbial, it is not possible to extract out of the PP argument. If the manner adverbial is a PP the same effect appears (5c). This makes Adger & Tsoulas to draw the conclusion that there appears to be a difference between *-ly* and PP manner adverbials.

These are facts that Adger & Tsoulas want to account for. The next section deals in detail with how this is done.

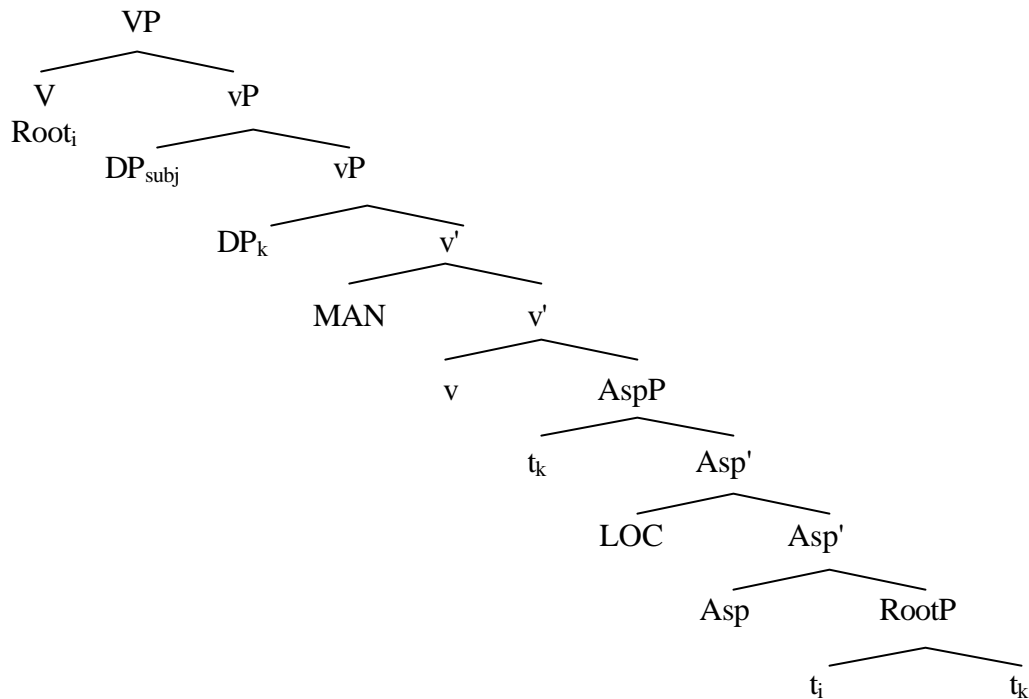
3.1.1 Licensing

According to Adger & Tsoulas, adverbials are licensed through featural mechanisms. These mechanism are similar to those involved in the licensing of true DP arguments. A locative or a manner adverbial, Adger & Tsoulas argue, is licensed simply by being present in the lexical numeration. Locative adverbials are merged in a specifier position of a v head and manner adverbials are merged as specifiers of an Asp head. In theory this means that an infinite number of manner and locative adverbials are licensed, even of the same type. Adger & Tsoulas are aware of this and the only restrictions that they posit are processing considerations and the particular specification of the EPP feature on the Asp-head (see below).

3.1.2 Hierarchical order

Adger & Tsoulas adopt the view that categorial features are introduced in the syntax (see Marantz (1997), following Picallo (1991) and Pesetsky (1995)). This is done by projecting nominal or verbal functional structure above lexical roots. The main verb is the categorial verbalising head which takes as its complement a light predicate which is associated with accusative case and agentivity. This light *v* head takes as its specifier the subject and as its complement an aspectual projection of the verb, AspP. The AspP contains the semantic root of the verb, and root must raise to V for morphological reasons. The complement of the root is the direct object, while adverbials are merged as specifiers of *v*P and AspP:

(6)



The basic assumption is that an EPP feature must be satisfied. If the feature is satisfied by a goal determined by the probe of a head (H), the XP-goal raises to merge with the projection of H and the EPP feature is deleted. Adger & Tsoulas also assumes that the EPP can be satisfied by an element that does not enter into a H-associate relation. In this case the EPP feature is not deleted and the element is merged as an inner specifier of H. The effect of this is that any number of non-agreeing XPs can merge with H, as in (7):

(7) [XP YP...ZP H{probe, EPP} [XP{goal}]]

Adger & Tsoulas assume that telic Asp is associated with uninterpretable features and needs to enter an H-associate relation. The relevant goal for the probe of Asp (telic) is the feature governing quantization. According to Adger & Tsoulas, quantised objects and locative adverbials have interpretable features which relate an event and an individual in terms of spatial measure. A quantised object raises to AspP and deletes the EPP feature of Asp. This has the effect that if an adverbial is available in the numeration it must be merged to AspP before the object. Because an adverbial does not delete the EPP, any number of adverbials is possible. Adger & Tsoulas also assume that the preposition establish a P-associate relation with its DP complement. Asp cannot do this because of locality constraints. There is also a *v*-

associate relation with the object. The relevant features in this relation are phi-features. There is also an EPP feature on *v* that can be satisfied by one or several manner adverbials. The EPP feature is deleted as soon as the object is raised and merged to *vP*. Adger & Tsoulas introduce a distinction between *-ly*¹ and PP manner adverbials. The preposition establishes a head associate relation with its DP, in the same way as locatives do. Because this feature is checked by Asp, PP adverbials are merged in AspP. Adger & Tsoulas further propose that verbs that do not assign an agentive theta role cannot appear with manner adverbials because they lack the light *v*.

This is a strictly hierarchical structure regarding the adverbials and the object. *-ly* manner adverbials appear below the direct object and above space adverbials.

3.1.3 Linear order.

Adger & Tsoulas assume that strict hierarchical order leads to linear order. The structure in (6) correctly predicts, according to Adger & Tsoulas, that *-ly* manner adverbials precede space adverbials in linear order. PP adverbials, both manner and space, are merged as inner specifiers of AspP. The relative order of these adverbials in the hierarchical structure is simply a reflection of the order in which they are picked from the numeration. The word order, regarding adverbials, that this theory predicts is the following: V, direct object, *-ly* manner adverbial, PP adverbials. It also predicts that it is possible to iterate adverbials. Adger & Tsoulas give (8), from Ernst (1998), as an example.

(8) They played loudly badly

3.1.4 Discussion

There are a number of problems concerning Adger & Tsoulas' analysis of adverbials. Starting with locative adverbials, there does not seem to be a clear relation between the preposition in the adverbial and the atelic aspect of a predication. There are numerous examples where a space adverbial gives a telic reading rather than an atelic, as in (9). According to Adger & Tsoulas (9b) would get an atelic interpretation because there is no object to delete the EPP of Asp. In Adger & Tsoulas' analysis, the fact that (9b) is wellformed would be an indication of the lack of an EPP feature on Asp, i.e. atelic aspect. This is clearly not the case.

(9) a. They drove atelic
 b. They drove to London telic

Another problem concerns the feature governing quantization. Adger & Tsoulas (2000, 12) say "that the EPP feature of Asp must be of the correct selectional type to allow a locative to Merge." The feature is quantization, i.e. the feature that Asp's probe is looking for. Since the relation between the preposition and its complement quantizes the PP, it can merge in AspP, satisfying EPP. The EPP feature is only present in telic specifications of Asp (p11). This predicts that PP adverbials can only occur in telic predications. The problem for Adger & Tsoulas' analysis is that PP adverbials very well can occur in atelic predications. As (2a) shows, this is perfectly natural.

(2a) They climbed up the mountain

¹ The reader is referred to Adger and Tsoulas (2000:15) for details regarding the structure of *-ly* adverbials.

Adger & Tsoulas' assumption that there is a difference between *-ly* manner adverbials and PP manner adverbials has the consequence that at least one important generalisation is missed. If the fact that non-agentive verbs cannot be modified by manner adverbials is due to lack of light *v* (where *-ly* manners are), there is no explanation for why these verbs do not allow PP manner modification (PP manners are in Asp). Adger & Tsoulas' analysis predicts that (10) is wellformed, but that is not the case.

(10) Mud splashed in a careless way on the wall

Another problem, at least to some native speakers, is that (8) is strikingly bad. This suggests that there may only be one possible position for manner adverbials. When there is more than one manner adverbial present in the numeration, the preferred way to integrate them in the predicate is by co-ordination, as in (11).

(11) They played loudly and badly

My conclusion is that the relation between space adverbials and aspect is perhaps not as straightforward as Adger & Tsoulas make it appear. Secondly, there does not seem to be enough evidence for making a distinction between PP and *-ly* manner adverbials. On the contrary, there is evidence to suggest that they should be treated as belonging to just one single category. The analysis presented by Adger & Tsoulas does not really explain the data that they give, which of course, is a very big problem.

3.2 Manninen

A brief summary of Manninen's hypothesis is that circumstantial adverbials are licensed by functional heads low down in a layered *vP* (cf. Larson 1988). This licensing is similar to the licensing of arguments of *V*. Elements that are generated in a multiply-layered *XP* are not visible to asymmetric *c-command* relations. Therefore they cannot be ordered by the *LCA*, and consequently, they are not linearly ordered when they are spelled out to *PF*. In order to avoid a crash in *PF*, they are assigned a random order by the *PF* component. This is why we have such a phenomenon as 'weight effect'.

Manninen takes as starting point the following set of examples (12) (Manninen's (1))

- (12) a. I kissed him last night in a garden shed in a most passionate way
b. I kissed him in a garden shed last night in a most passionate way
c. I kissed him in a garden shed in a most passionate way last night
d. I kissed him in a most passionate way in a garden shed last night

Her claim is that the different orderings of the time, space and manner adverbials in (12) do not give rise to different interpretations regarding meaning and focus.

The different tests that Manninen applies clearly indicate that there is a hierarchical difference between the direct object and the circumstantial adverbials. The tests are anaphor binding, shown already in (3), negative polarity (13), superiority (14), and weak crossover (15) (adopted from Manninen's (13)-(15)). In all these examples, the direct object, generally taken to be the lowest argument of *V*, is able to *c-command* into the adverbial.

- (13) a. She saw no one in any of those days
b. *She saw anyone in none of those days

- (14) a. Who_i did you see t_i how?
b. *How_i did you see who t_i?
- (15) a. ?I saw a picture of its_i owners in that house;
b. *Which house_i did you see a picture of its_i owners in t_i

The standard assumptions regarding these tests are that; negative polarity items such as *any* can only occur in the *c*-command domain of a negation, in this case *no*; superiority effects are a consequence of least effort (i.e. if two elements can move to a certain position, the closest will move, resulting in a more economic derivation); and weak crossover effects are due to the impossibility of a trace to be coindexed with a pronoun to its left.

Manninen shows that when binding and negative polarity tests are applied to adverbials there is no evidence that there is a hierarchical ordering, (16) (Manninen's (21) and (22)).

- (16) a. I danced tango[in none of those ways] [in any of those places]
b. *I danced tango [in any of those ways] [in none of those places]
c. I danced tango better than her_i in (*Mary_i's)/her_i garden shed
d. I danced tango better than her_i on (*Mary_i's)/her_i birthday

The difference between sentences as (17a) and (17b), where there is a prosodic break in (16b), cf. Adger & Tsoulas' (2000), she claims, are due to 'weight effects' and not to the type of adverbials involved. If the 'intonational weight', as Manninen calls it, of the two adverbials is more even they are once again allowed to vary in order. This is clearly shown in (17c) and (17d), (examples from Manninen's (26) and (27)).

- (17) a. I danced tango slowly in a garden shed
b. ?I danced tango in a garden shed slowly
c. I danced tango in a most graceful way in a garden shed
d. I danced tango in a garden shed in a most graceful way

Manninen suggests that this indicates that weight affects linear order, rather than hierarchical order. Hence, her conclusion, based on these data, is that there is no way to tell what the hierarchical order of the circumstantial adverbials is. What appears to be certain, though, is that they are all hierarchically lower than the direct object.

3.2.1 *Licensing*

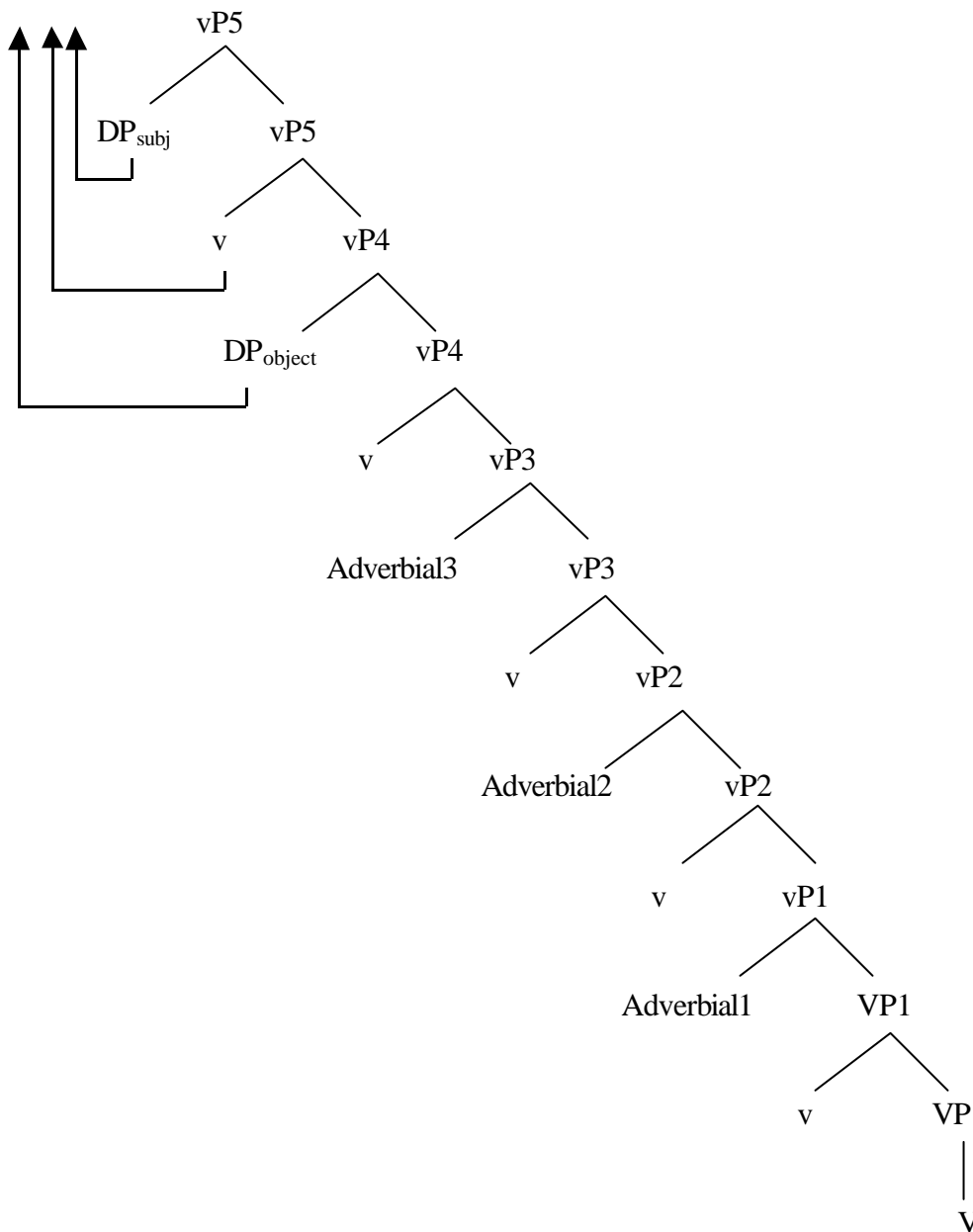
Manninen assumes a feature based approach to licensing of circumstantial adverbials. She also assumes that circumstantial adverbials are merged as unique specifiers of light functional v heads in a layered vP, in line with Alexiadou (1997) and Cinque (1999), among others. The adverbials are licensed by some feature of the functional head that must be satisfied. This means that there is always agreement between the adverbials and the functional heads, in other words, an adverbial cannot be merged in any specifier position in the vP. This is similar to the licensing of arguments of V. Manninen's arguments in favour of this approach are that there have been suggestions (Alexiadou (1997), Chomsky (1965), Grimshaw (1990) among others) that circumstantial adverbials are assigned an optional theta-role. In addition, they modify the core event variable of a sentence and they restrict the choice of possible events denoted by the verb, similar to referential DPs. Exactly how a verb can license one or several of the functional heads that are necessary for the licensing of the circumstantial adverbials, is not specified by Manninen. She claims that the order of the functional heads that license the

adverbial is a truly fixed hierarchical order. This leads us to the aspect of hierarchical order of adverbials in the next section.

3.2.2 Hierarchical order

In the feature-based theory that Manninen adopts, the order of the functional heads is a fixed hierarchical order. Hierarchy is based on the notion of asymmetric c-command. Since a circumstantial adverbial can only be merged in the specifier position of one and only one particular functional head, the consequence is that the order of adverbials is a fixed hierarchical order, too. The structure she proposes is the one shown in (18). The arrows indicate H-associate relations.

(18)



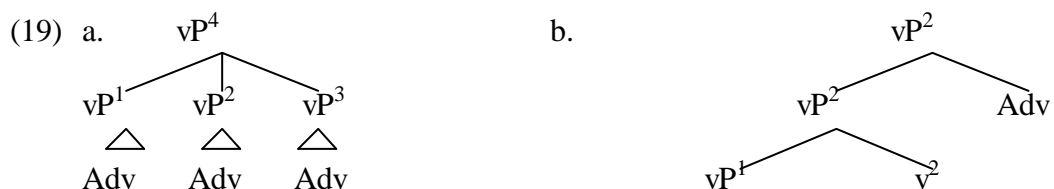
According to the LCA this inevitably leads to a fixed linear order. This obviously seems to be a contradiction to Manninen's earlier discussion and evidence, especially (12) Manninen's solution to this paradox is the assumption that under certain conditions unambiguous hierarchical order does not correspond to total linear order. She suggests a relaxation of Kayne's (1994) condition on total linear order. According to Kayne (*ibid*) a structure with non-total order (asymmetric c-command), must crash at spell out. This suggestion has also been made by Chomsky (1995). While Chomsky assumes that only phonologically empty elements are an exception to asymmetric c-command, Manninen takes this assumption one step further and suggests that even elements with phonological content can be excluded from total linear order. The exact circumstances under which this is possible are explored in the following section.

3.2.3 *Linear order*

Manninen's analysis makes use of the distinction between segments and categories (May 1985). This distinction is also used by Kayne (1994) in order to get an asymmetric c-command relation between specifiers and heads. According to Kayne segments of the same category cannot enter into c-command relations. Manninen suggests that layered vPs are not independent categories. Their behaviour is more similar to segments of one and the same category. Hence, they cannot enter into c-command relations, and in the extension, not into asymmetric c-command relations either. The effect of this is that the elements cannot be ordered by the LCA, and there is no linear order. In order to save a derivation from crashing at spell out the elements are assigned an arbitrary order by PF itself. The hypothesis that elements of vP are segments of one and the same category and invisible to the LCA implies that the subject, the verb and the object(s) are able to appear in random order. As Manninen clearly showed earlier, there is indeed both a hierarchical and a linear order between the direct object and the circumstantial adverbials. A similar relation exists between the subject and the verb and the direct object. Manninen's suggestion is that elements that enter into a Head-associate relation with functional heads are subject to asymmetric c-command relations. In (18), it is shown how these three elements move out of vP because of EPP features. An EPP feature is not a condition, the H-associate relation is sufficient. According to Manninen, circumstantial adverbials do not enter into H-associate relations with outside functional heads, and are therefore not subject to asymmetric c-command.

3.2.4 *Discussion*

The main problem with Manninen's analysis is that it is unclear what she means with hierarchical order. Hierarchical order is usually based on the notion of c-command, or in Kayne's (1994) case asymmetric c-command. There seems to be no way to exclude structures such as (19), from the layered vP that Manninen suggests.



In (19a) we have a multiple branching node with flat structure and in (19b), we have a right branching structure. Both these structures are considered to be ill-formed within the

minimalist program. One of the advantages of the LCA and asymmetric c-command is that it derives X-bar structure from more basic requirements. There is no need to postulate separately what a tree structure looks like, it follows from asymmetric c-command relations and the LCA. The structure in (19a) is ruled out because of the lack of asymmetric c-command. The structure in (19b) is ruled out because the asymmetric c-command does not follow the LCA (asymmetric c-command leads to linear order, left to right). If we do away with the LCA and asymmetric c-command there is no possibility to prevent illformed structures. Unless the structures are postulated. The only way that Manninen can maintain that there is a fixed hierarchical order between circumstantial adverbials is to postulate what X-bar structure looks like. Since she assumes that elements outside a layered XP are subject to the LCA and asymmetric c-command, her suggestion leaves the theory with two axioms that may be reduced to one.

One factor that speaks in favour of her approach is the phenomenon of weight effects, as we saw in (17). But weight effects also influence the linear order of elements that are hierarchically ordered according to asymmetric c-command relations. Arnold et al (2000) show that information structure and the relative weight of elements, in their study direct objects and prepositional objects and adverbials, in a statistically significant way play a role in the linear ordering of elements. Heavy elements are positioned after light elements and new elements are placed after given elements. To conclude, Manninen's assumptions, correct or not, concerning both the LCA and weight effects do explain the data that she gives.

4 Comparison

4.1 Licensing

Both theories work with a feature driven approach to the lexical insertion of adverbials. adverbials are licensed by functional heads in a layered vP. The difference between Manninen and Adger & Tsoulas is the type of the functional heads that license adverbials. Adger & Tsoulas say that these functional heads are there for an independent reason, to assign an agentive theta role and to specify telic/atelic aspect. Manninen says that the functional heads are specific for each adverbial, and that they are there for no other reason. Adger & Tsoulas can in a nice way predict multiple adverbials, but their theory does also seem to overgenerate manner adverbials. If manner and space adverbials are licensed under the same mechanisms, it is odd that multiple space adverbials are allowed more freely than multiple manner adverbials. Manninen does not deal with the fact that there may be several adverbials of the same type. This is not necessarily a problem. In the same way that the functional v heads are licensed, not specified by Manninen, it could be possible to license several functional heads of the same type. What Manninen misses in her theory is the fact that there is a correlation between manner adverbials and agentivity. Even though Adger & Tsoulas deal with this correlation, they wrongly predict that PP manner adverbials can occur with agentiveless predicates.

4.2 Hierarchical order

In both papers, a hierarchical order of adverbials is taken for granted. In Adger & Tsoulas' it is based on c-command. In Manninen's, it is unclear what it is based on. The difference between the two is that in Adger & Tsoulas paper the order of adverbials is visible to hierarchical relations and in Manninen's it is not. A structure that is invisible to hierarchical

relations could in practice lack hierarchical structure. Another problem with 'invisible' structure is acquisition. It seems almost insurmountable for a child to learn what a structure looks like if the structure is not subject to any notion of hierarchical relation.

4.3 Linear order

Both Adger & Tsoulas and Manninen follow Kayne's (1994) LCA. However, both theories are concerned with the fact that sometimes the linear order seems haphazard. Adger & Tsoulas' solution is to allow for a certain amount of randomness when the adverbials are merged from the numeration. The order in which they are picked is not fixed, but once they are merged they are hierarchically ordered and the LCA applies. Manninen claims that the adverbials cannot be ordered by the LCA, because they are not subject to asymmetric c-command. Instead, the adverbials are assigned a random order by the phonological component of the grammar.

One way to get rid of invisible structure and an undesired relation between aspect and PP adverbials in general, is to combine the two theories. If we use Manninen's way of licensing adverbials by hierarchically ordered functional heads and Adger and Tsoulas' idea that certain elements are merged in a random order, then we could see the order of the functional heads as a random order of merging. This implies a strict hierarchical structure that allows for a certain amount of difference in linear order. In order to single out true arguments of V, which do not show this random order, it is possible to adopt Manninen's solution with H-associate relations. However, the relation between manner adverbials and agentivity remains unexplained.

5 Conclusion

For an outline of recent research on adverbials, two theories are only a very small amount of the vast literature available on the subject. The two papers that I have presented dealt mainly with syntactic aspects of adverbials. This is of course not the only approach available. The drawbacks of such an approach is that it fails to explain the semantic factors that are involved in, for instance adverbial clusters. Further questions that seem important for a theory of adverbials to deal with are the fact that adverbial clusters seem to behave as one single constituent in V2-languages, and the fact that adverbials may be displaced. If they are merged in the vP, why do we find them in other places in the clause, even inside DPs? The task of answering those question is subject for further research, it is not within the scope of this brief scrutiny.

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