The Left-Left Constraint – a structural constraint on adjuncts

Hubert Haider

Dept. of Linguistics & Centre for Cognitive Neuroscience, Univ. Salzburg

Abstract

Left-hand adjuncts of left-headed (= *head-initial*) phrases are constrained in a particular way that is unheard of for left adjuncts of head-*final* phrases. The head of the adjunct must be in the absolute phrase-final position. Anything that follows the head disqualifies the phrase as an adjunct. The effect of this *head-final-constraint* is adjacency between the head of the adjunct and the phrase the adjunct is adjoined to. Adjuncts to head-final phrases are not constrained that way. This holds for adverbials, viz. adjuncts to VPs and APs, as well as for adnominal attributes.

This constraint does not follow from any known conditions on phrase structuring. It will be shown to arise from a licensing requirement that holds for phrases to be merged with a given phrase. Left adjuncts of head-initial phrases are not within the licensing domain of the head of the phrase and therefore they are in need of an alternative way of getting licensed. This alternative way – proper attachment – results in the hitherto unaccounted adjacency effect.

1. An opening remark on the general topic of headedness

Generally, and arguably universally, phrases are endocentric.[1] This entails that a complex phrase containing other phrases has a unique head and that the other phrases are in a licit grammatical relation to this head. The fundamental relation is the head-complement relation. In such a configuration the complement meets requirements imposed by the head, such a categorical subcategorization and semantic selection. The head provides a specified and limited number of licenses for its complements.

Another widely recognized, though in some theories[2] eliminated and replaced, relation is the adjunct relation. As Dowty (2003:33) points out, "*The distinction between 'complements' and 'adjuncts' has a long tradition in grammatical theory, and it is also included in some way or other in most current formal linguistic theories.*" But he emphasizes that "*it is a highly vexed distinction for several reasons, one of which is that no diagnostic criteria have emerged that will reliably distinguish adjuncts from complements in all cases.*"

One distinctive property, which Dowty notes, is perhaps the only reliable distinction between these two kinds of grammatical relations: Adjuncts can be instantiated in an arbitrary number within the same phrase, complements cannot. Grammar does not set a principal upper bound for attributes in combination with a single noun phrase or adverbials in combination with a single verb phrase. "*Multiple adjuncts (an unlimited number), can accompany the same head*

---

[1] Not only for this reason is it very hard to produce candidates of phrases that are not joined by a head. For German, a single case, namely *verblose Direktive* (verbless directives), illustrated below (i.) and (ii.), is discussed by Jacobs (2008). See G. Müller (2010) for an endocentric analysis.

 i. *In den Müll mit diesen Sachen*!　　　(Into the trash-bin with this things!)
ii. *Nieder mit den Studiengebühren*!　　　(Down with the tuition-fees!)

[2] In some versions of current Generative Grammar approaches, adjuncts are analysed as phrases in the spec position of an (empty) functional head that selects what would be the target of adjunction in an adjunction system as its complement (see the discussion below).

while only a fixed number of complement(s) can accompany a head (viz. just the one (or two, etc.) subcategorized by the particular head." (Dowty 2003: 39).

From a theoretical point of view, this tells us that what we usually call an adjunct is not under strict control of the head of the phrase, neither in terms of the quantity or category nor in terms of the semantics. It is not the host phrase that selects the adjunct, but the semantics of the adjunct determines which phrase it may be joined for arriving at a well-formed outcome. For example, a lexical head can neither forbid nor require the presence of frequency or time adverbials. Adverbs may 'come or go' without permission by the head of the phrase they associate with as adjuncts. At least in this respect, there is some limited space for anarchy (see title of this volume) in a phrase, with adjuncts as anarchists, that defy the authority of the head of a phrase in terms of subcategorization or selection.

Even if the head has no tight control on adjuncts, there is a strict structural constraint that has not been fully appreciated and so its source went unknown. This paper focuses on this very property imposed by structure. Adjuncts that *precede* their host phrase are structurally constrained if and only if their host phrase is a *head-initial* phrase. This constraint is absent for adjuncts of head-final phrases or phrases with flexible head positioning, such as in the Slavic languages.

2. The issue

Left-adjunction to *left*-headed major lexical phrases[3] is subject to a constraint that is absent for (left-)adjunctions to right-headed phrases (Haider 2004:782-784; 2010:194; 2013:13-16 and 34-37). The constraint is this. The head of the phrase that is *left*-adjoined to a *left*-headed phrase must be *adjacent* to the phrase it is adjoined to. For ease of reference in this paper, this constraint shall be referred to as the *Left-Left-Constraint* (LLC). The LLC is a hitherto unexplained constraint. It does not follow from any known constraints on the organization of phrase structure.

In strictly head-initial languages such as English, the LLC applies to left adjuncts of any major lexical phrase, and in particular to adjuncts of NPs as well as VPs. For all these adjuncts, their heads must be strictly adjacent to the phrase they are adjoined to. The adjunct may be extended on its left side, for instance by degree modifiers, but its head must be phrase-final in order to be adjacent to the host phrase. Note that the adjacency requirement holds for the *head* of the adjunct relative to the *phrase* to which the adjunct is adjoined. In other words, it is not a *head-to-head*-adjacency but a *head-to-phrase* adjacency. This is particularly clear when several adjuncts are involved. Each adjunct must be adjacent to the phrase it adjoins, even if this phrase already contains a left-adjoined adjunct.

In German and Dutch[4] and all other Germanic OV languages, the LLC applies only to adjuncts of NPs but not to adjuncts of VPs or APs. This is a predictable fact since NPs are head-initial

---

[3] "Major lexical phrases" are phrases headed by word-level categories, such as A, N, V, and to a limited extent P. These heads, unlike functional-category heads, such as complementizers or articles, are associated with an argument structure. Semantically, they are predicates that combine with arguments. So, the LLC is a constraint of left-adjoining to left-head phrases with argument-taking heads.

[4] Broekhuis (2013:292) formulates a "*Head-final Filter on attributive adjectives*":
"The structure [NP ... [AP ADJ XP] N#] is unacceptable, when XP is phonetically non-null and N# is a bare head noun or a noun preceded by an adjective phrase: [(AP) N]."

while VPs and APs are head-final phrases in these languages.[5] Since the LLC is a constraint on left-adjunction to head-*initial* phrases, VPs and APs are not in the scope of this constraint. Consequently, in strictly head-final languages – Japanese, for example – there is no context at all for the LLC to apply.

The following English examples illustrate the LLC first for adjuncts (1) of VPs and then for adjuncts of NP (2). Preverbal adverbials may be phrasal and contain modifiers, but the head of the adverbial must be in the final position (1a-d), in order to meet the LLC. (1e) illustrates the head-to-phrase adjacency. Each of the two adjuncts must be head-adjacent to the VP they are adjoined to. (1f) is instructive for two reasons. First it shows that the adjective plus the comparative phrase form a single phrase, and second, it shows that a clause-initial position is not subject to the LLC since the functional head of a clause is not an argument-taking head.

Eventually, the contrast between (1g) and (1h) reconfirms that a *structural* condition is at work. The adverbials are in the very same pre-VP position and semantically they are nearly equivalent, too, but the acceptability of the outcome is completely different, as a search in three big corpora[6] confirms. The sequence "should more *ly", with "*" as a joker for a single word, is attested in each corpus (BNC: 17, CocA 53, NOW 254). However, as expected for a PP in the pre-VP position, the sequences "should with care", "should with great care", or "should with more care" are completely absent in these three corpora, that is, in an aggregated corpus of 5.8 milliard words.

The situation is fully analogous for Romance. A Google search (Dec. 15, 2017) for "*doit soigneusement*" ('must carefully') on news and book sites produced 59 and 14.100 hits, respectively. A search for "*doit avec soin*", ('must with care') however produced zero hits under 'news' and only eight in the unfiltered search, some of which are enclosed by commas, although *'avec soin*" is attested 31.000 times for 'news' and more than 7 million times in general. In languages with head-final VPs, as for instance Dutch or German, no such difference exists for preverbal adverbials (4).

(1) a. A finch is [[much more *often*] [heard in Blackwood Forest than an owl]]
   b. A finch is [[much more *often* (*than an owl)] [heard in Blackwood Forest]]
   c. He has [[more *carefully* (*than anyone else)] [analysed this problem]].
   d. She has [[much more *often* (*than him)] [*successfully* [reorganised the finances]]].
   e. She has [VP often [VP publicly [VP criticised Trump]]]
   f. [Much more *often* than an owl], a finch is heard in Blackwood Forest.
   g. One should *more carefully* analyse such data.
   h.*One should *with* (*more/great*) *care* analyse such data.

As for attributes, Huddleston & Pullum (2002:551) note the "*virtual exclusion of post-head dependents. Attributive AdjPs, like other attributive modifiers, hardly permit post-head complements or modifiers.*" The hedging by 'hardly' is motivated by some of the apparent exceptions of the kind analysed in subsection (4).

(2) a. an [[obviously much less fascinating (*than the LLC)] [constraint]]

---

[5] For Dutch, see Broekhuis (2013: 291-293).
[6] BNC = British National Corpus (100 million: British, 1980s-1993); CocA = Corpus of contemporary American English (520 million: US, 1990-2015); NOW = News on the web (5.2 milliard: Web news, since 2010).

b. an [[extremely fascinating (*to his audience)] [actor]]

c. a [very good (*at math)] linguist

d. a [generous (*to a fault)] examiner

In German, the LLC constrains left-adjunction to an NP as a head-initial phrase (3) in the same manner as in English. APs and VPs, however, are head-final and therefore 'immune' against the LLC (4a-c). German is representative of the Germanic OV-languages in this respect, and Dutch too (4g,h).

(3) a. eine [[offensichtlich viel *faszinierendere* (*als diese)] [Beschränkung]]

b. eine [[hervorragend *geeignete* (*dafür)] [Kandidatin]]

c. eine [[um Vieles *bessere* (*als gedacht)] [Lösung]]

d. eine [[ebenso gut *geeignete* (*wie er)] [Kandidatin]]

(4) a. Diese Beschränkung könnte [[viel *faszinierender* als das EPP] sein]$_{VP}$

  this constraint could ((much-more fascinating than the EPP) be)

b. Er hat [dieses Problem [so *präzise* wie alle anderen] analysiert]$_{VP}$

  he has this problem as precisely as any other analysed

c. ein [[viel *häufiger* als jedes andere] verfügbares]$_{AP}$ Gut

  a much more-frequent than any other available asset

d. eine [viel faszinierendere (*als das EPP)]$_{AP}$ Beschränkung]$_{NP}$

  a much more-fascinating (than the EPP) constraint

e. eine [[so *präzise* (*wie alle anderen)] [Analyse des Problems]]$_{NP}$

  an as precise (as all others) analysis (of) the problem

f. ein [[viel *häufigeres* (*als jedes andere)]$_{AP}$ Gut]$_{NP}$

  a much more-frequent (than any other) asset

g. dat beslissingen [veel *meer* dan werd gedacht] gedreven worden door emoties[7] Dutch

  that decisions [much *more* than is thought] triggered were by emotions

h. een veel *sneller* (*dan een paard) dier

  a much faster (than a horse) animal

As a consequence of the LLC, prenominal attributes in strictly head-initial languages such as Romance, North-Germanic and English are complementless since any complement of the head of the attribute would intervene between the head and the target of adjunction and thereby violate the LLC. Complex attributes are obligatorily post-nominal (5). In Romance this is a regular option, in Germanic this is an instance of apposition (6). This is reflected by the lack of agreement (6a vs. 6b). Another option is the extraposing of the intervening phrase, if the grammar admits this (6c). French is representative for all other Romance languages in this respect.

(5) a. a curious (*about his past) mother-in-law

b. a mother-in-law, curious about his past

c. un [plus grand (*que le précédent)]$_{AP}$ nombre de personnes   French

  a much bigger (that the preceding) number of persons

d. un nombre de personnes [plus grand que le précédent]$_{AP}$

---

[7] http://nha.courant.nu/issue/HD/1935-07-11/edition/0/page/2?query=

    e. une femme [fière de soi]$_{AP}$

       a woman proud of herself

    f. une [fière (*de soi)]$_{AP}$ femme

(6) a. Ein Schmetterling, *so selten wie* der Apollofalter, ist der Segelfalter.

       a butterfly, *as rare*$_{(no\ agreement)}$ *as* the Parnassius-apollo is the Iphiclides-podalirius

    b. Ein so selten*er* (*wie der Apollofalter) Schmetterling ist der Segelfalter.

       ein so seltener$_{Agr}$ (as the Pranssius-apollo) butterfly is the Iphiclides-podalirius

    c. Ein [[so selten*er*] Schmetterling *wie der Apollofalter*] ist der Segelfalter.

The LLC predictably holds for any language with unequivocally head-initial phrases. However, there are alleged SVO languages that violate the LLC, as for instance the Slavic languages. Upon closer scrutiny, these languages do not qualify as unequivocally head-initial. In Slavic languages, the head position in the phrase is in fact not fixed. It is *flexible*. For details, the reader is referred to Haider & Szucsich (2018) and Szucsich & Haider (2015). Slavic languages are representative of a *third type* of head-positioning, namely *unspecified* head-positioning, in addition to the other two widely acknowledged types, namely head-*initial* and head-*final*. In such a 'Type-3' setting, adjuncts of an apparently head-initial phrase are not constrained by the LLC; see Szucsich & Haider (2015), Haider & Szucsich (2012). A grammar with unspecified head positioning, that is, a type-3 language, allows for alternative serializations within a phrase. A head may alternatively be in an initial (7a), final (7b), or intermediate position (7c), that is, sandwiched between its arguments. Polish is representative of the majority of Slavic languages in this respect.

(7) a. że Basia *pokazuje* Jarkowi swój dom.   Polish

      that Basia$_{NOM}$ *shows* Jarek$_{DAT}$ her house$_{AKK}$

    b. że Basia Jarkowi swój dom *pokazuje*.

    c. że Basia Jarkowi *pokazuje* swój dom.

In Polish and in Slavic languages that resemble Polish, the LLC effect is absent for preverbal adjuncts (8a) as well as for prenominal adjuncts (8b).[8] The resemblance between (8b) and its English counterpart is misleading. The verb position in (8b) is just one of several available positions, as illustrated in (7). The contrast between English and Slavic languages in this respect confirms the conjecture that LCC is a property of adjuncts of genuinely head-initial phrases. If in Slavic, a head may license in either direction, it will license adjuncts in either position.

(8) a. [[$_{AP}$ wierny (swojej żonie)] mąż]$_{NP}$ Polish

       faithful (his wife$_{DAT}$) man

    b. $^{?}$W zeszłym roku [[$_{AdvP}$ *dużo więcej* (niż Jarek)] pracowała tylko Katarzyna]$_{VP}$

       during last year *much more* (than Jarek) worked only Katarzyna

The absence of the LLC in Slavic languages is merely one feature out of a systematic set of contrasts between uncontroversial SVO languages and the Slavic languages. They are Type-3 languages that have been misclassified as SVO languages (Haider & Szucsich 2018, Szucsich & Haider 2015).

---

[8] The question mark is to indicate that the informants fully accepted the given serialization of (8b), but showed at the same time a preference for the alternatively available variant that avoid centre-embedding.

3. Previous attempts of accounting for LLC-constrained data

The adjacency property of adnominal attributes and of preverbal adverbials has each been seen as a theoretical challenge in the literature, but not as a common property of head-initial phrases. Each of the following three theoretically admissible moves has been tried out, namely a head-to-functional-head raising account (for adjectives), a head-complement relation (for adjectives), and a head-to-head adjunction explanation (for adverbs). In each case, adjacency is captured, but each account is empirically inadequate. No account is able to satisfactorily cover both instances – adnominal attributes and adverbial phrases – and the absence of adjacency with adjuncts of head-final host phrases. In addition to these grammar-based accounts, a tentative proposal regards the LLC as a means of facilitating processing.

3.1. Adverbs as head-to-head adjoined items?

The fact that preverbal adverbials typically are simple adverbs duped Bouchard (1995:409), who claims that preverbal adverbials in English or French are head-adjoined to the verbal head and therefore 'simple'. Even if this were a correct option, which it is not, it would not rule out adjoining phrasal adverbials. The hypothesis merely postulates that word-level adverbials may be adjoined to a verbal head. By the same token, however, he would have to assume that phrase-level adverbials would have to be adjoined to the phrase-level category, that is, the VP. Eventually, it would be entirely unclear what to do with adverbs that precede other adverbs as in "*She'd have surely more deeply regretted it.*"

It should be obvious that the head-head adjunction idea misses an essential generalization. Preverbal adverbials may be phrasal but only to the extent that the head remains phrase-final. For strictly head-initial languages like English or French this entails that a preverbal adverbial phrase can be extended only on its left side and not on the side where the complements would appear. Hence adverbial phrases in English may contain modifiers but no complements (9), as attested in corpora of professional English. This has apparently escaped Bouchard's attention, as well as the parallels in other languages, as for instance in Romance (9d,e).

(9) a. The young person has [*very* often] done well at school.
    b. One should [*very/more* carefully] monitor the available evidence.
    c. She has *even* earlier (**than him*) published in this field.
    d. Lausanne a *plus souvent* perdu contre Berne.[9]   French
       Lausanne has *more often* lost against Bern
    e. Lausanne a *plus souvent* (*que Berne) perdu.
       Lausanne has more often (than Bern) lost.

3.2 Adjectival attributes with heads raised to functional heads selecting an NP?

A more sophisticated approach is the hypothesis that attributive APs are complements of a functional head, viz. an agreement head, in combination with the obligatory raising of the adjective to this functional head position. This is exactly what Corver (1997:291) has proposed, namely "the *existence of a head-final functional node Agr (heading AgrP) which can function as a landing site for adjectival heads that are moved rightward*".

(10) a. [[$_{Agr-P}$ [$_{Agr'}$ PRO [... A° ...]$_{AP}$ 0$_{Agr°}$]$_{Agr-P}$ [$_{NP}$ ... N°...]]$_{NP}$ base structure

---

[9] https://www.24heures.ch/sports/lhc/Malley-a-souvent-porte-l-equipe/story/24627399

b. $[[_{\text{Agr-P}} [_{\text{Agr'}} \text{PRO} [... e_i ...]_{\text{AP}} \text{A°}_{\text{Agr°}}]_{\text{Agr-P}} [_{\text{NP}} ... \text{N°}...]]]_{\text{NP}}$ raising of A° to Agr°

This hypothesis correctly predicts that the adjectival head of an AP attribute in the NP will always be adjacent to NP because the functional head the adjective targets is adjacent. However, the hypothesis demonstrably fails in other respects. There are equally immediate predictions of this hypothesis which are simply wrong. Head-movement to the right over-generates heavily. It predicts outcomes that do not exist. Here are two areas of counterevidence, one from English and one from German which are representative of the respective language type, that is, VO and OV, respectively.

If an adjective were raised out of the AP into a pre-nominal functional head position, then APs with complements (11a,b) would be turned into attributes in which the argument of the AP apparently precedes the adjective, but only in attributes. The predicted results (11c,d) are un-questionably discouraging. English is a case for the LLC but English obviously does not raise the adjectival head out of an AP attribute (11c,d), and English is representative of all other head-initial Germanic and Romance languages, all of which are constrained by the LLC. By the same token, participial constructions with particle verbs are predicted to strand the particle in German or Dutch, but they don't (11e).

(11) a. He has always been [eager to improve]$_{\text{AP}}$
    b. He has always been [faithful to her]$_{\text{AP}}$
    c. *He has always been a [[e$_i$ to improve]$_{\text{AP}}$ eager$_i$]$_{\text{Agr-P}}$ scientist
    d. *He has always been a [[e$_i$ to her]$_{\text{AP}}$ faithful$_i$]$_{\text{Agr-P}}$ husband
    e. *der [[allen *ab*-e$_i$ davon] *ratende*$_i$] Experte[10]
        the everyone$_{\text{Akk}}$ *dis*-e$_i$ of-it *advising*$_i$ expert   (ab+raten = dis+advise)

The raising of an adjective to an agreement position would strongly resemble the raising of the finite verb to the verb second position in V2-languages. In Scandinavian languages, for in-stance, the finite verb crosses the subject and precedes it in its derived position, and strands the particle. In the Germanic OV-languages, the fronting of the finite verb crosses all of its com-plements. In the case of adjective movement, the adjective in its derived position would be predicted to cross particles and objects, with such items ending up in a position in which they would precede the raised item. The facts do not support this hypothesis, however.

German provides another area of evidence, along the same line. Elements that obligatorily fol-low the adjective in the AP are banned from the attributive construction in German (and in Dutch as well) because of the LLC. A comparative PP obligatorily follows the adjectival head (12a,b). But, if the adjective raises, it would cross the comparative PP, resulting in (12c). This prediction turns out wrong (12c). The adjective in (12c) is treated just like the adjective in (12c), namely as an adjective with a wrong serialization.

---

[10] This is exactly the structure Corver (1997: 350) argues for, with examples such as (i):
i. $[_{\text{DP}}$ een $[_{\text{NP}} [_{\text{AgrP}}$ PRO $[_{\text{Agr'}}$ [nauw t$_i$ daaraan] $[_{\text{Agr}}$ verwante$_i$]]] $[_{\text{NP}}$ man]]]]
        a   closely there-to   related   man
The problem shows when the moved item is a verbal element, that is, a participle, with an obligatorily stranded particle. The predicted outcome is clearly deviant. (11e), the participial construction corresponding to (ii) – stran-ded particle & extraposed PP – is ruled out by the LLC. The well-formed version is (iii).
ii. Der Experte riet$_i$ [allen ab-e$_i$ davon]
iii. der [allen davon abratende]$_{\text{AP}}$ Experte

(12) a. Der Preis ist [höher *als der Wert*]$_{AP}$
      the price is higher than the value
   b.*Der Preis ist [*als der Wert* höher]$_{AP}$
   c.*der [[e$_i$ als der Wert]$_{AP}$ höhere$_i$]$_{Agr-P}$ Preis

Eventually, a movement account for adjectives would merely cover NP-adjuncts. So, the account would have to be generalized in order to cover VP-adjuncts as well since the LLC applies in both contexts.

For VP adjuncts, there is a proposal by Cinque (1999) that is based on functional projections. The idea that preverbal adjuncts are contained in functional projections has been widely adopted since. In spite of its wide reception there exists unequivocal, robust and manifold counterevidence;[11] see Haider (2013, sect. 6.4 and 6.5) and Haider (2004). According to Cinque's proposal, which has become a standard assumption in Generative approaches, adverbial phrases are phrases in the spec positions of empty adverbial functional heads.

(13) a. .... [$_{Adv-P}$ XP [$_{Adv°}$ 0 [$_{VP}$ V° ...]]]
   b. Hillary has [[[very cleverly] 0$_{Adv}$] [figured out that]$_{VP}$]

Within this framework, an LLC-effect is completely unexpected and unpredicted. If an adverbial phrase is a phrase in a spec position, the LLC has no chance at all to apply. Typical and uncontroversial functional spec positions such as the clause-initial position in V2-languages or the subject position in SVO languages are open to phrases of any structural make-up. In particular, there is no evidence for a restriction such as the LLC to apply to phrases in such positions. Such evidence, if it existed, would be surprising since the LLC is a constraint on adjunctions and not on functional specifier position.

Note that in Cinque's account, a raising approach would not be admissible since the VP is regarded as the functional complement of the functional head. A VP with a preverbal adverbial is an adverbial phrase with a VP complement.[12] The adverbial phrase is a phrase in the spec position of the functional projection. An adverbial head could not leave the spec position and target the functional head position. In Corver's version, the AP is the complement of the functional head and the functional projection containing the adjective is adjoined to the NP.

---

[11] Here is a central and straightforward prediction that is wrong in any of the applicable OV languages: Any phrase that precedes an adverbial phrase in an OV language is predicted to be opaque for extraction. This prediction is inevitable but empirically wrong. If 'vergeblich' (futile) were in a functional spec-position, the infinitival clause preceding it is either in a spec-position, too, or it is adjoined to a functional projection. In each case, extraction is predicted to be ungrammatical. There is no OV language that would unequivocally confirm Cinque's prediction.
i. Mich$_i$/Wen$_i$ hat er [e$_i$ damit zu überzeugen] vergeblich versucht/?
  me/who(m) has he [with-it to convince] vainly attempted
[12] As an inevitable but unwelcome consequence, each auxiliary in (i) subcategorizes and selects an adverbial phrase while the very same auxiliaries in (ii) subcategorize and select a VP:
 i. The new theory certainly may [$_{Adv-P}$ possibly have [$_{Adv-P}$ indeed been [$_{Adv-P}$ badly formulated]]]
ii. The new theory may [$_{VP}$ have [$_{VP}$ been [$_{VP}$ formulated badly]]]
Moreover, intervening head, such as a negation particle trigger *do*-support (ii). The alleged adverbial heads are predicted to have the same effect but they don't (iv). The difference follows if adverbials are adjuncts of the VP.
iii. It does *not* work that way.
iv. It *never* works that way.

In sum, a functional projection accommodating an attributive AP or an adverbial phrase of a VP is not the key for the solution but a road to predictions that fail. Its consequences are counterfactual.

3.3 Attributive adjectives as heads that select an NP complement?

A third avenue of attacking the problem has been contemplated by Abney (1987:339). He suggested that the NP following the attributive AP is a complement of the adjective (14a).

(14) a. [DP the_{D°} [AP very [A' outspoken [critic of this proposal]_{NP}]]]

    b. [DP ein [[sich seiner Sache sehr *sicherer*]_{AP} [Kritiker des Vorschlages]_{NP}]_{NP}

         a REFL_{Dat} his cause_{Gen} very sure critic the proposal_{Gen}

    c. [DP ein [sich [A' seiner Sache [A' sehr [A' *sicherer*_{A°} [Kritiker des Vorschlages]_{NP}]]]]_{AP}]

    d.*[DP ein [sich [A' seiner Sache [A' sehr [A' [Kritiker des Vorschlages]_{NP} *sicherer*_{A°}]]]]_{AP}]

That (14a) cannot be a correct analysis becomes clear in a language in which the AP is head-final. Here, the complements of the adjective precede the head, but the phrase is nevertheless subject to the LLC if it is an adjunct of a head-initial phrase. German is a language with this kind of setting. Abney's focus is merely on English. German clearly tells that an analysis that – due to the restriction imposed by LLC – might be contemplated for English would not work for German, as (14c,d) illustrate

In German, just like in English, adjectives do not permit accusative objects, but there are dative, genitive and prepositional objects. The adjective *'sicher'* (sure) takes a reflexive genitive and a dative as objects in a head-*final* AP. If we disregard the implausible semantic compositionality of (14c) for the moment, the NP as a complement in (14c), would be a structurally illicit complement nevertheless since an AP is head-final in German. So, NP complements have to precede. Consequently, if the NP were a structural complement of the adjective, it would have to precede (14d). The resulting expression is gibberish, however. No language is known with structures like (14d).

There is simply no evidence for a structure such as (14c). Moreover, the complementation idea would run into difficulties whenever a NP is modified by more than one attribute (15). In this case, in Abney's analysis, the lower adjective 'sympathisch' (likeable) would select an NP as complement while the adjectival head 'befremdlich' (strange) of the higher attribute would have to select an AP. Clearly, the result would be grammatical only if the lower AP is an attribute of an NP. Since the higher attribute cannot select the lower NP directly, the account will inevitably lead into over-generation.

(15) der [[für mich befremdliche]_{AP} [[ihm sympathische]_{AP} Vorschlag]_{NP}]_{NP}

    the [to me strange] him_{Dat} [him likeable] proposal

Abney's idea is in fact similar to Cinque's proposal for adverbials, except that Cinque postulates an empty functional head while Abney takes the adjective to be the selecting head. If Abney updated his analysis, he could join Cinque and postulate a functional head for attribution (or agreement, like Corver), that selects the NP. This analysis would fail, too. If he assumed, following Cinque, that adjuncts are phrases in spec positions, the LLC could not apply and rule out the ungrammatical cases. If, on the other hand, Cinque adopted Abney's analysis and applied it to adverbials, assuming that the head of an adjunct in reality selects the phrase it appears

to be adjoined to, then the analysis fails for languages with head-final phrases, since they are not constrained by the LLC.

3.4 The LLC as a processing effect?

An explicit attempt of deriving some of the LLC effects in a theoretically uncommitted approach is Fischer's (2016) tentative proposal of an explanation in terms of a boundary-signal function of adjectival agreement. The adjectival agreement inflection in German is suspected to serve as a boundary signal for the boundary between the preceding adjunct and the NP. As a boundary signal for the boundary of the AP it is bound to be phrase-final.

Attractive though it might seem, such a parsing-affiliated account does not satisfactorily work for various reasons. First, there are languages such as English without any adjectival agreement, but attributes are constrained by the LLC. Second, Norwegian shows that the inflected adjective is not strictly adjacent to the following NP since 'nok' (enough) may intervene; see examples (26) below. Third, the LLC effect for attributes is but a subset of the LLC phenomena. The LLC applies to adverbials as well, but in this case, it could not be attributed to a violated morphological boundary condition since adverbials do not agree. Fourth, the boundary-signal hypothesis would lead to exactly opposite expectations with respect to the head-position of the host-phrase of the adjoined phrase. The LLC effect should be absent for head-initial phrases because here, the NP-*initial* head of the NP clearly signals the boundary for a preceding attribute. On the other hand, head-final phrases, such as German VPs, are notoriously ambiguous with respect to the boundary of an adjunct. If a boundary-signal-based condition applied in head final contexts, at least (16a) would be eliminated and (16a,b) would be disambiguated. The ambiguity between (16c) and (16d) is unavoidable since it is a result of 'scrambling', that is, the word order alternation in the midfield. Boundaries are not signalled where signalling would be helpful for parsing.

(16) a. Sie ist [zufrieden damit] abgereist.
      she has content it-with left ('Content with it, she has left')
   b. Sie ist zufrieden [damit abgereist]
      'Content, she has left with it'.
   c. Sie ist [damit zufrieden] abgereist.
   d. Sie ist damit [zufrieden abgereist]

In sum, the theoretical tool-kit of grammar theory does not offer any promising tool for deriving the LLC in such a way that it simultaneously covers the modifiers of NPs (viz. 'attributes') and the modifiers of VPs and APs (viz. 'adverbials'). The potential way out of postulating functional projections above an attribute or an adverbial turns out to be empirically as well as theoretically unattractive.

4. Apparent counterevidence for the LLC - cases of "acceptable ungrammaticality"

English is a representative instance for discussing apparent exceptions. The LLC constrains two patterns. First, adverbials in the slot between the subject position and the left boundary of the VP in English have to be head-adjacent to a head-initial VP. Second, prenominal attributes of head-initial NPs have to be head-adjacent to the NP. This section presents data that at first glance appear to contradict these predictions and forwards reasons and evidence as to why this is apparent counterevidence. Here (17) are examples of the data areas to be discussed:

(17) a. Research has [*at* the same time] come under increased scrutiny.

     b. a [*higher* than average/expected] proportion[13]

     c. [??]an [*easy* to enter] competition

In (17a), the head of the adverbial PP is the preposition "*at*". The head of the attributive AP in (17b) is the adjective "*higher*", and in (17c), the head arguably is the adjective "easy". None of these heads is adjacent to the target phrase of adjunction. Huddleston & Pullum (2003:780) are deliberate when characterizing what they call the 'central position' of adjuncts: "*Central position disfavours long and heavy adjuncts. Thus [...] PPs, NPs are fore the most part less likely in this position than AdvPs.*"

As for (17a), the following table presents instructive search results for "*has at the same time*" in comparison to similar expressions with virtually the same structure in the three big corpora (see fn. 7) of written English. The scores show that (17a) is not representative of PP-adverbials in this position. The number before the slash is the number of occurrences of the given expression. The number following the slash is the number of occurrences of the PP alone in the respective corpus, that is, "*at the same time*" in (18a), and so on.

(18)	BNC	CocA	NOW
a. "has at the same time"	6 / 6835	11 / 34097	105 / 279.400
b. "has at the right time"	0 / 244	0 / 1208	0 / 21421
c. "has at a different time"	0 / 18	0 / 86	0 / 541
d. "has at that time"	0 / 2493	0 / 9772	2 / 83.806
e. "has at no time"	1 / 126	0 / 367	19 / 20.410

A side glance on German, with its head-final VP shows that it imposes no restraints on adverbials positions preceding the base position of the verb in the VP. This is directly reflected in corpora. A Google-search for "*hat zu dieser Zeit*" (= has at that time) – filtered for "news" and "book" sites – produced 1.380 hit on news-pages and 19.200 hits on book-sites.

The search results for English confirm that "*at the same time*" and, to a very small extent, "*at no time*" are the odd balls, but in a frequency range well below one-tenth of a percent. Both expressions are used like parenthetic[14] idiomatic expressions. Whenever the very same NP headed by "time" has to be interpreted compositionally and therefore structured compositionally, the corpora confirm the LLC-geared prediction at a 100% level (18b-d). This indicates that such expressions, viz. (18a and 18e), are treated like an *adverbial idiom*, in place of "*simultaneously*" or *"never"*

---

[13] I am especially grateful to Kerstin Hoge und Amir Zeldes for making me aware of this particular type of data in the discussion period after my presentation at the conference. An instance of the same class is discussed by Van Riemsdijk (2006) namely "*a far from simple matter*". Note that in German the obligatory agreement requirement drives language users into compromising in favour of the LLC. This is an instance of acceptable ungrammaticality.

(i) [?]eine so einfach wie möglich*e* Management-Oberfläche

    a so simple as possible$_{sg.nom}$ management-interface

    (http://www.searchdatacenter.de/sonderbeitrag/Nutanix-und-VMware-im-Clinch-Welche-Rolle-spielt-der-Acropolis-Hypervisor)

[14] Some writers typographically mark the parenthesis, as in the following example:

  i. And it's ridiculous to have someone who *has – at various* points in his life – paid little or no taxes, ...

http://www.post-gazette.com/opinion/Op-Ed/2018/11/26/Ruben-Navarrette-Jr-Donald-Trump-flip-flops-on-immigration-make-for-one-wild-ride/stories/201811260022 (accessed Nov. 27, 2018).

The pattern (17b) stands for an intriguing class of apparent counterexamples. Again, the exceptions are limited to a small set of candidates. The outstanding items are "expected" and "average" and the profile is again uneven. In each case, the comparative expression intervenes between the head of the attribute and the target phrase of adjunction. This is a structure clearly ruled out by the LLC.

(19)		CocA	BNC	NOW
a.	a better than *expected* ...	8	3	351
b.	a better than *average*	14	8	141
c.	a better than *necessary* ...	0	0	0
d.	a better than *usual* ...	2	0	6
e.	a higher than *expected* ...	5	3	220
f.	a higher than average ...	29	13	361
g.	a higher than *necessary* ...	1	0	3
h.	a higher than *usual*	5	2	131
i.	a faster than *expected* ...	1	0	65
j.	a faster than *average* ...	0	0	1
k.	a faster than *necessary* ...	0	0	0
l.	a faster than *usual* ...	0	0	6

The key for understanding these findings comes from languages in which the head of the attribute is inflected. German is such a language. Here are the German counterparts (20). They confirm the LLC *and* they show how language users try to outfox it (21), in German and in English. As expected and predicted, the LLC correctly blocks structures with interveners. In (20), the head is identified by agreement inflection, it is not adjacent to the NP, and the result is ungrammatical and robustly unacceptable.

(20) a.*ein besser*es* als erwartet Ergebnis

a better$_{sg.n.nom/acc}$ than expected result

c.*ein [teurer*es* als nötig] Eingreifen

an more-expensiv$_{sg.f.nom}$ than necessary intervention

d.*den besser*en* als üblich Ausblick

the better$_{sg.m.acc}$ outlook

Corpus search, however, produces a non-negligible number of specimen of the kind illustrated by (21). Here, the adjacent inflectable item is inflected although it is surely not the head of the attribute since it is embedded in the comparative phrase introduced by *'als'* (than). In fact, (21) is a 'fake' way of fulfilling the LLC. The adjacent item is treated as if it were the head although it is definitely not the head of the attribute. Why this? The source is a rule conflict.

(21) a. ein besser als erwartet*es* Ergebnis[15]

a better than expected$_{n.nom.sg.}$

b. die besser als durchschnittlich*en* Erfolgsstatistiken[16]

the better than average$_{fem.nom.sg.}$

---

[15] https://www.cash.ch/news/top-news/boersen-ticker-aktien-new-york-weiter-zurueckhaltung-unter-anlegern-1067114
[16] http://www.krebs-kompass.org/showthread.php?t=3605&page=7

    c. ein [teurer als nötig*es*] Eingreifen[17]

       a expensiver than necessary$_{\text{n.nom.sg}}$

    d. den besser als üblich*en* Ausblick[18]

       the better than usual$_{\text{m.acc.sg}}$

The rule conflict is this. The LLC enforces an adjacent head position but the comparative construction requires the comparative *than*-phrase to follow the comparative adjective and thereby intervene. This is a catch-22 situation. If one rule is obeyed, the other is violated. In such a situation, speakers tend to waive what they feel to be the minor rule.[19] The results are phenomena of 'acceptable ungrammaticality' (Bever 1976, Frazier 2015, Haider 2011, Phillips et als. 2011). Examples such as (21) sound acceptable and are only recognized as ungrammatical upon closer scrutiny. This phenomenon – *acceptable ungrammaticality* – is the key for understanding (19).

In German, but not in English, the 'fake head'-strategy is betrayed by inflection. The German data show what happens in English. Speakers treat an adjacent item as a fake head for the purposes of the LLC. Let us check this explanation. An immediate prediction is this. Uninflectable items or items of a different category than that of the real head are fully unacceptable. This turns out to be correct. In (22) 'expected' is a finite verb, and in (22b), 'bullet' is a noun, and 'the median' is a DP (in 22c)

(22) a.*a better than I expected result

    b.*a faster than a bullet interceptor plane[20]

    c.*a higher than the median temperature

The category mismatch makes the very same strategy unviable in the case of adverbials. A corpus search for the counterparts of attributes in adverbial usage, such as (23), produced zero results. If "*better than expected*" were a licit adnominal attribute it ought to be a licit adverbial, too. But it isn't.

(23) a. *She has better than expected solved the problem

    b. *She has higher than average scored on this task

A special case of the pattern illustrated by (19) is triggered by the distribution of "enough" and its cognates in the Germanic languages (Haider 2011). This is the only degree modifier that does not precede its target (24). In all Germanic languages, it has survived and preserved its exceptional status over already a period of more than a millennium, apparently due to its high frequency. Being a degree modifier, it is an uninflected word.

(24) a. sufficiently big   –   big *enough*

    b. genügend groß   –   groß *genug*   German

---

[17] https://www.gruene-bundestag.de/parlament/bundestagsreden/2011/oktober/gerhard-schick-errichtung-des-europaeischen-finanzaufsichtssystems.html

[18] http://www.finanzen.net/nachricht/aktien/gute-aussichten-gute-branchennews-treiben-chipwerte-infineon-auf-langzeit-hoch-5293416

[19] A less frequent but also attested alternative attempt of dodging the conflicting rule situation is inflecting both, the adjectival head *plus* the adjacent inflectable item:

 i. ein besser*es* als erwartet*es* Ergebnis

    a better$_{\text{Agr}}$ than expected$_{\text{Agr}}$ result

[20] Amir Zeldes (p.c.) made me aware of structures of the type "*a faster-than-light travel*", which could be mistaken for attribute + N structures but are in fact compounds whose initial part is a graft.

c. voldoende groot	–	groot *genoeg*	Dutch
d. tilstrækkeligt stor	–	stor *nok*	Danish

The fact that this modifier follows the head of the AP should disqualify such an AP for attributive usage. It would violate the LLC, and indeed, such constructions are robustly deviant, as the examples (25a,b) exemplify. However, the corpora reveal attempts of outwitting the LLC such as the following sample (24c,d), which is also confirmed by Fischer (2016), and the spellchecker of my text software marks them as incorrect.

(25) a.*keine groß*en* genug Triebwerke

      no big$_{fem.pl.nom.}$ enough engines

    b.*auf fest*en* genug Beinen

      on strong$_{n.pl.dat}$ enough legs

    c. ?keine groß genug*en* Triebwerke[21]

    d. ?auf fest genug*en* Beinen[22]

In (25c,d), the intervener is inflected, although it is an uninflectable item. In German, even in combination with a noun, *'genug'* remains uninflected, in either position, prenominal or postnominal.[23] The inflection in (25c,d) is a way of compromising the LLC by violating the minor rule (i.e. inflecting the uninflectable) for saving the major rule, namely LLC, by pretending that "genug" is the head, by virtue of being inflected.

Dutch, German, English, and Norwegian provide a nice minimal setting for relevant contrasts in this respect. English does not inflect attributes, but Dutch (Brokhuis 2013:454), German and Norwegian (Fabricius-Hansen 2010:180) do. Among the inflected group of these languages, Norwegian tolerates an inflected adjective followed by 'enough', but Dutch and German don't. So, these data show that the difference between English and Norwegian on the one hand, and German and Dutch on the other hand should not be sought in conditions of attribute inflection. What accounts for the acceptability of (26a,d) in contrast to (26b,c) cannot be a principle of inflection.

(26) a. a big enough room

    b.*een groote genoeg inzet   – ??een groot genoege inzet

      a big$_{agr}$ enough dedication

    c.*ein groß*er* genug Raum   – ??ein groß genug*er* Raum

      a big$_{nom.sg.m.}$ enough room

    d. et stor*t* nok rom   – det stor*e* nok leveranser[24]

      a big$_{sg.}$ enough room   the big$_{pl.}$ enough supplies

Why are English and Norwegian tolerant against 'enough' as intervener, but Dutch and German aren't? English and Norwegian are VO languages and in VO languages, particles of particle

---

[21] http://www.kleinezeitung.at/international/5295011/A380-notgelandet_RiesenAirbus-zerriss-es-ein-Triebwerk

[22] https://www.pickupforum.de/topic/152024-toter-bester-freund-der-freundin-würde-euch-das-stören/?page=2&tab=comments#comment-2193863

[23] Cf.: Geld genug (money enough) – genug Geld (enough Money) – genug Münzen (enough coins) – genug Abstand (enough interspace) – *genug*es* Geld – *genug*e* Münzen – *genug*er* Abstand.

[24] https://www.an.no/bodoby/vi-har-fatt-landets-storste-fiskebutikk/s/1-33-7147807

verbs follow the verb. Consequently, participial attributive constructions with particle verbs always have particles intervening between the participial attribute and the noun phrase:

(27) a. a washed *out* road,   a switched *off* phone,   a rolled *up* ribbon;

    b. eine *aus*gewaschene Straße, ein *ab*geschaltetes Telefon, ein *auf*gerolltes Band;

Particles of particle verbs do not count as interveners for LLC since particles are part of a complex verb and this complex verb is the head. This opens an escape hatch for (26a,d). The degree particle is interpreted as part of a complex adjectival head.[25] This escape is not available in Dutch or German since in these languages, the particle of complex verbs obligatorily precedes. Hence there is no licit pattern for post-head degree particle to be associated with.

Let us turn now to the third pattern, namely (16c). The German counterparts (28) are unproblematic since inflection shows that the head of the attribute is in final position. The construction is a participial construction in which the adjective serves as an optional adverbial.

(28) a. ein nicht (leicht) zu lösend*es* Problem

    a not (easy) to solve problem   ('a problem that is not (easy) to solve')

   b. eine nicht (einfach) zu beantwortend*e* Frage

    a not (easy) to answer question   ('a question that is not (easy) to answer')

For the pattern (16c), illustrated once more by (29a), there is a variant in English, namely (29b), in which the adjective clearly is the adjacent head. Corpus search[26] shows that the type (29b) outnumbers the type (29a) by far. This result is stable across other predicates such as "difficult", "hard" or "simple".[27] Huddleston & Pullum (2002:551) rule out and star "*an easy to find place*" but admit a "*ready to eat TV meal*" as having "*something of the character of a fixed phrase.*"

In fact, (29b) is an independent construction, and not merely the extraposition variant of (29a), as the examples in (29c-d) illustrate. For predicates such as "convenient" or "comfortable", a construction type such as (29a) is unquestionably deviant but an infinitival clause as a complement of N is grammatical and acceptable.

(29) a. [??]an *easy to answer* question

    b. an *easy* question *to answer*

    c. a *convenient* place to begin – *a convenient to begin place

    d. a *comfortable* car to drive   – *a comfortable to drive car

Once more, and in analogy to (18), (29a) is an instance of a 'fake-headed' attribute. Grammars of English qualify such a structure as deviant (Huddleston & Pullum 2002:551). This judgement matches the corpus search results. The construction "an easy to N" is totally absent in the BNC. CocA produced a single hit. Even the biggest corpus consulted, namely the NOW corpus contains merely a single token of the string "*an easy to answer*", in the context of "*an easy to answer question*". There are other instantiations of this construction type that are somewhat

---

[25] Consequently, 'enough' should be a tolerated intervener also for preverbal adverbials, which is the case indeed:
  i. "Security" has *often enough* become a stand-in for whatever intelligence operatives decide to do.   (NOW)
[26] Here are the results for the following searches:
 i. "is an easy to":   BNC 0;   CocA   1;   NOW 147.
ii. "is an easy * to" ("*" = joker for a word slot):   BNC 30;   CocA 177;   NOW 1601.
[27] NOW corpus: "is a *difficult* to": 26, "is a *difficult* * to": 1690; "is a *hard* to" 22, "is a *hard* * to" 1416; "is a *simple* to" 13, "is a *simple* * to" 770.

more frequent. For example, there are 146 tokens of "*an easy to understand ...*" in the NOW corpus, but not a single token is attested in the BNC corpus. The CocA corpus contains four tokens of this expression. Therefore, it is safe to conclude that these are instances of acceptable ungrammaticality. They sound acceptable to some extent, but they are ungrammatical.

The attributes in (29) are treated as if the infinitival verb were the head. After all, it is the NP that provides the referent for the object slot of "answer" in (29a). But even in this situation of 'acceptable ungrammaticality', LLC is clearly respected since anything to the right of the verb makes the construction strictly deviant in the pattern (30a). Here, the LLC is violated, as above, but the fake head strategy would not work, either, since in VO languages, adverbials must not intervene between the verb and a direct object.

(30) a.*an [easy to answer *correctly*] question
　　 b. an easy question [to answer *correctly*]

In sum, is seems warranted to conclude that the allegedly 'apparent' counterevidence is apparent indeed. The LLC is not challenged by these data. Taken together with the existing positive evidence, they confirm the existence of such a constraint on adjunction to head-initial phrases.

5. The grammatical source of the LLC constraint

The LLC exists, but a satisfactory account of this constraint is still missing. Let us recapitulate what the desired account has to cover. *First*, it has to capture a directionality property. The LLC constrains left adjuncts of left-headed phrases, that is, head-*initial* phrases. It is absent for left adjuncts of right-headed, that is, head-*final* phrases, and it is absent for adjuncts of phrases with unspecified directionality of the head, as for instance in the VPs or NPs[28] of Slavic languages.

Second, the desired condition has to be category-neutral since the LLC applies to NP adjuncts (i.e. attributes) as well as to adjuncts of VPs and APs (i.e. adverbials). This disqualifies accounts in terms of an agreement relation between the head of the adjunct and the head of the hosting phrase. In other words, the fact that there are languages in which adnominal attributes agree with the NP they are adjoined to is irrelevant since in the very same languages the adverbials do not agree but both contexts are equally constrained by the LLC.

Third, the LLC only constrains *adjuncts* but it crucially does not apply to phrases in spec positions. This disqualifies accounts that place attributes or adverbials in spec position of functional heads. Taken these facts together, they call for a fresh approach. The approach suggested here is one in terms of a directionality-based licensing theory (Haider 2013, 2015).

Why should directionality matter? Directionality is the factor that determines the head-positioning in phrases by the specified directionality in which heads license dependents. *Progressive* directionality is the trigger-property for phrase-*initial* heads; phrase-*final* heads are heads with *regressive* directionality. The directionality domain of the head is the domain in which the head of a phrase licenses dependent phrases.

---

[28] The LLC holds for attributes in the South Slavic BCS languages, that is, Bosnian, Croatian, Serbian and Slovenian but not in the other Slavic languages (see Szucsich & Haider 2015). In the BCS languages and Slovenian, the directionality of N° is specified as 'progressive', producing *head-initial* NP-structures.

Adjuncts preceding a head-initial NP, VP, or AP are phrases that are obviously not in the directionality domain of the progressively licensing head of the phrase. That is the crucial distinction between head-initial and head-final phrases. Adjuncts preceding the head of a head-final phrase, such as ZP in (31a), are within the directionality domain of the regressively licensing head of the phrase. In (31b), ZP is not within the directionality domain of x°, but in (31a) it is.

(31) a. head-final: $[_{XP} ZP \leftarrow [.... \leftarrow x°]_{XP}]_{XP}$
     b. head-initial: $[_{XP} ZP [x°_{\rightarrow} ....]_{XP}]_{XP}$

In (31a), an adjunct ZP is within the licensing domain of x° because x° is a *regressively* licensing head and therefore it is directionally licensed by x°. In (31b), ZP is outside the directionality domain of x° and therefore not licensed by x°. For the details of the licensing system and the derivation of the systematic contrasts between head-final and head-initial phrases, the reader is referred to Haider (2015) and (in press).

For the present purpose it is sufficient to realize the directionality difference between (31a) and (31b) and to acknowledge that each phrase integrated in another phrase needs to be directionally licensed in the containing phrase. This leaves exactly one context of a phrase that is not licensed by the head of the phrase it is a part of. This context is the context of left adjuncts to left-headed phrases. In this case, the glue for integrating a phrase is not licensing by a head. The phrase must produce its own glue for attaching to another phrase. Let us call this relation *'proper attachment'* and define a principle to that effect:

(32) a. *Principle of Proper Attachment* (PPA): A phrase XP contained in a constituent YP that is *not in the licensing domain* of the head of YP must be properly attached to YP.

   b. A phrase XP is *properly attached* to a constituent YP if it is *adjoined* to YP and the head of the projection is *minimally distant* from YP.

   c. The head x° of XP is *minimally distant* from YP if there is no ZP ($\notin$ projection node of x°) dominated by XP that is *adjacent* both to X° and YP.

This principle is sufficient for covering all the phenomena discussed above. The LLC is the joint result of properties of the adjoining phrase and the host phrase. Head-initial host phrases are unable to license their *left* adjuncts directionally. So the adjoined phrase must license its position by itself. It must properly attach to the host phrase. This is the source of the LLC effects. For adjuncts that are properly attached and precede a head-initial phrase, *each node* on the projection line of the adjunct is adjacent to the host phrase.

In head-final phrases, adjuncts are directionally licensable in any adjunction position preceding the head. So there is no need for a last resort option for obtaining a positional license via the PPA, whence the complete absence of LLC effects. In Type-3 phrases, the head is free to license in either direction since the directionality is not fixed to a particular value, that is, either progressive or regressive.

 As a closing remark, I do not hesitate to admit that the definition of (32) resorts to a potentially unwelcome ingredient for an entirely structural condition, namely to 'adjacency'. Adjacency is both a structure-based and a string-based condition. Within a given phrase, two items α and β are adjacent if and only if there is a joint dominating node (= structural condition) and there is

no intervening (= string-based) item γ. For the time being, I do not see how to dispense with the string-based part of PPA in order to arrive at a purely structure-based definition.

6. Conclusion

The LLC is the effect of a principle that governs the attachment of phrases to other phrases outside of the directionality domain of the host phrase. It is a principle necessitated by the conditions of licensing phrases in a projection, based on the directionality of a head and its projections (see Haider 2015 for the details of the licensing system and the systematic syntactic consequences that correlate with the head-initial and head-final property). Phrases *adjoined* to a phrase outside of the directionality domain of the head are nevertheless licensed but under a different condition. They are 'glued' to the respective phrase, which requires 'smooth' attachment. This is defined as 'proper attachment' by the PPA (Principle of Proper Attachment): *Each node* on the projection line of the PPA-adjoined, that is, properly attached, phrase is *adjacent* to the host phrase.

For strictly head-initial languages with prenominal attributes, the PPA strips these attributes of all their complements. Apparent counterexamples are cases of 'acceptable ungrammaticality' and reflect the users' attempts to circumvent the PPA. In head-final phrases, all these effects are absent. In sum, the PPA completes the licensing system for joining phrases.

Bibliography

Abney, Steven 1987. *The English noun phrase in its sentential aspect*. Unpublished PhD dissertation. Cambridge, Mass.: MIT.

Bever, Thomas G. 1976. Analogy or ungrammatical sequences that are utterable and comprehensible are the origins of new grammars in language acquisition and language evolution. In: Bever, Thomas G., Katz Jerold J., Langendoen D. Terence (eds). *An integrated theory of linguistic ability*. 149-182. New York: Thomas Y. Crowell Company.

Bouchard, Denis 1995. *The semantics of syntax*. University of Chicago Press.

Broekhuis, Hans 2013. *Syntax of Dutch: adjectives and adjective phrases*. Amsterdam University Press: Amsterdam.

Cinque , Guglielmo (1999) *Adverbs and functional heads: a cross-linguistic perspective*. Oxford University Press.

Corver, Norbert 1997. The internal syntax of the Dutch extended adjectival projection. *Natural Language and Linguistic Theory* 15: 289-368.

Dowty, David 2003. The dual analysis of adjuncts/complements in categorial grammar. In Lang, Ewald, Claudia Maienborn & Cathrine Fabricius-Hansen (eds.) *Modifying adjuncts*. 33-66. Berlin: Mouton de Gruyter.

Fabricius-Hansen, Cathrine 2010. Adjektiv/Partizipialattribute im diskursbezogenen Kontrast (Deutsch – Englisch/Norwegisch). *Deutsche Sprache* 38: 175-192.

Fischer, Klaus 2016. Vertextungsstrategien im Deutschen und Englischen: die Attribution in der Nominalphrase. In: Hennig, Mathilde (ed.) *Komplexe Attribution*. Berlin: de Gruyter

Frazier, Lyn 2015. Two interpretive systems for natural language? *Journal of Psycholinguistic Research* 44(1): 7–25. doi:10.1007/s10936-014-9328-0

Haider, Hubert 2015. Head directionality – in syntax and morphology. In: Antonio Fábregas, Jaume Mateu, Mike Putnam (eds.) *Contemporary linguistic parameters*. London: Bloomsbury Academic. 73-97.

Haider, Hubert 2013. *Symmetry breaking in syntax*. Cambridge University Press.

Haider, Hubert 2011. Grammatische Illusionen. *Zeitschrift für Sprachwissenschaft* 30: 223-257.

Haider, Hubert 2010. *The syntax of German*. Cambridge: Cambridge University Press.

Haider, Hubert 2004. Pre- and postverbal adverbials in VO and OV. *Lingua* 114 (6): 779-807.

Haider, Hubert (in press). VO/OV-base ordering. (to appear) in Richard Page & Michael T. Putnam (eds.) *Cambridge handbook of Germanic linguistics* (chapter 16).

Haider, Hubert & Luka Szucsich. *Slavic languages – "SVO" languages without SVO qualities?* Ms. Universität Salzburg & HUB.

Huddleston, Rodney & Pullum, Geoffrey K. 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.

Jacobs, Joachim 2008. *Wozu Konstruktionen? Linguistische Berichte* 213: 3–44.

Phillips, Colin, Matt Wagers, & Ellen Lau 2011. Grammatical illusions and selective fallibility in real-time language comprehension. In J. Runner (ed.) *Experiments at the interfaces*. *Syntax & Semantics* (vol. 37), 153-186. Bingley, UK: Emerald.

Müller, Gereon 2010. Regeln oder Konstruktionen? Von verblosen Direktiven zur sequentiellen Nominalreduplikation. In Engelberg, Stefan, Anke Holler, Kristel Proost (eds. *Sprachliches Wissen zwischen Lexikon und Grammatik.* 211-249. Berlin: De Gruyter

Szucsich, Luka & Hubert Haider 2015. Freie Wortstellung in slawischen Sprachen und die VO/OV-Unterscheidung. In Elena Dieser (ed.) *Linguistische Beiträge zur Slavistik: XX. JungslavistInnen-Treffen in Würzburg, 22.-24. September 2011.* (Specimina Philologiae Slavicae). p. 94-124. München: Verlag Otto Sagner.

Van Riemsdijk, Henk 2006. Grafts follow from Merge. In Mara Frascarelli (ed.) *Phases of interpretation*. (Studies in Generative Grammar 91). 17-44. Berlin: Mouton de Gruyter.