

Cinque's functional hierarchy

READING SUGGESTION: *Good overviews of the 'Specifier vs. Adjunct'-debate surrounding syntactic theories of adverbs in particular as well as of adverbs in general are Alexiadou (2002), a State-of-the-Article, Delfitto (2006), chapter 4 of The Blackwell Companion to Syntax, and issue 114.6/2004 of Lingua, where different authors present and defend their theories of adverb syntax, among them Cinque himself (pp. 683-710).*

1. Adverbs in generative syntax

Delfitto (2004:85): "Given this state of affairs, it is really not surprising that the syntax of adverbs (and, more generally, the syntax of modification) still represents one of the most controversial domains of research, posing essential challenges to core modules of syntax such as the theory of categorial constituency, so that 'we still have no good phrase structure theory for such simple matters as attributive adjectives [...] and adjuncts of many different types' (cf. Chomsky 1995: 382, n. 22)".

2. Adverbs as diagnostic tools

At least since Jackendoff (1972), the fixed syntactic position of particular classes of adverbs¹ is used to determine the complexity of phrase-structure and the position of constituents. A high, speaker-oriented adverb (*frankly*), for example, cannot be present in structures that lack a CP, such as raising verb- or ECM-complements, which are IPs:

- (1) a. I think [_{CP} that *frankly* [_{IP} he should piss off]].
 b. *I want [_{IP} *frankly* him to piss off].

A famous example of this adverb hierarchy being put to use is Pollock (1989; also cf. Emonds 1976), where the cross-linguistically variable position of the main V w.r.t. a VP-adjoined manner adverb (*often*), which marks the left VP-boundary, serves as a motivation for the verb movement parameter.

- (2) [_{IP} John I° [_{VP} often [_{VP} kisses Mary]]] *English (V in situ)*
 (3) [_{IP} Jean embrasse_i-I° [_{VP} souvent [_{VP} t_i Marie]]] *French (V-to-I)*

Corresponding to the three clausal domains – roughly, i.e. CP, IP and VP – there are three major classes of adverbs, which, if they co-occur, appear in a fixed order relative to each other.

¹ Note that the notion of *adverb* is only a cover term for a rather broad range of semantically differing lexico-functional elements, stemming from traditional grammar.

Note also that the categorial distinction made between *adverb*, on the one hand, and *adverbials*, on the other. Commonly, adverbs are taken to be simplex elements (AdvP), mostly derived from adjectivals, whereas adverbials represent complex entities like events, propositions, etc. (they are often clausal, hence CP, IP, AspP, etc.). Given their common function of modification ('optionality'), they are actually both subject to a theory of *adjunct* (≠ adjunction) syntax, but the focus mostly remains on adverbs.

(4) *Adverb classes* (cf. Ernst 2002:10)

[_{CP} SPEECH ACT	[_{IP} PROPOSITION	[_{VP?} EVENT ²	[_{VP} EVENT-INTERNAL]]]	
speaker-oriented		subject-oriented	manner	Jackendoff (1972)
conjunct		disjunct	process-adjunct	Quirk <i>et al.</i> (1972)
Ad-S		Ad-VP	Ad-V	McConnell-Ginet (1982)
frame	proposition	event	process	Frey & Pittner (1999)
<i>obviously</i> <i>frankly</i> <i>probably</i>	<i>willingly</i> <i>happily</i> <i>necessarily</i>	<i>still</i> <i>always</i> <i>often</i>	<i>almost</i> <i>completely</i>	EXAMPLES

The co-occurrence restrictions imposed by such coarse partitions of the clause based on hierarchical-distributional observations, account for the (un)grammaticality of the following expressions (Relativised Minimality: *X_i...X_j...t_i; *X_i...X_j...t_i...t_j):

- (5) a. Michael should *probably* plan his seminars *carefully*.
 b. *Probably*, Michael should t_i plan his seminars *carefully*.
 c. **Carefully*, Michael should *probably* plan his seminars t_i. (≠ *Carefully*_{[+FOC],...})

3. Minimalist theories of adverb syntax

Basically, then, there are three options available of how to treat adverbs syntactically: (1) (left/right-) XP-adjoining them to the XP they modify (multiply, if necessary), (2) generating them in the Spec of the XP they modify (multiply, if necessary), or (3) generating them in the Spec of a dedicated functional projection.

This gives us two poles on a conceptual-theoretical continuum (disregarding intermediate positions, i.e. option (2) above):

- ① **ADJUNCTION APPROACH:** free adjunction of AdvPs (to a maximal projection) reflecting unmoved order, with independent semantic principles putting constraints on their ordering, their position, their interpretation (or ambiguity therein), etc., at C-I (cf. e.g. Ernst 2002)
- ② **FUNCTIONAL SPECIFIER APPROACH:** semantic/pragmatic classification of adverbs, attributing a particular ('dedicated') functional projection with a unique Spec to each class, and adducing a functional hierarchy from distributional facts (cf. e.g. Cinque 1999)

There exist theories in-between, permitting both unique Specs/dedicated functional projections *and* the traditional free adjunction (each for distinct adverb classes) (e.g. Alexiadou 1997, Länzlinger 1998). Nonetheless, these theories are much closer to the functional specifier approach than to the

² This would probably be EventP (Travis 1991), or, more generally, AspP, a functional projection closing off the vP, which is related to outer aspect (i.e. grammatical aspect, as opposed to inner/situation aspect, *Aktionsart*)

traditional XP-adjunction approach, in that they adhere to some uniqueness condition (i.e. if an adverb is adjoined, it is still adjoined to a specific functional head).

3.1 Cinque's functional hierarchy

Cinque (1999, 2004) proposes a very rich hierarchy of 30 functional heads. It spans from the upper boundary of vP up to CP. Each functional head licenses a unique Spec position, where a corresponding adverb may be (base-) generated. It should be noted that the functional projections designate the base position of the *unmoved* adverb (of course, nearly every adverb can be additionally fronted). While Indo-European (and other) languages pursue a lexical strategy in realising the functional concepts inherent to these heads (using what we refer to as adverbs), other languages resort to an inflectional realisation of these heads³. According to Baker's (1988) Mirror Principle, then, this means that the linear order of such bound inflectional morphemes should mirror that of free morphemes (adverbs particles), or, put differently, should mirror the order (in terms of c-command) of Cinque's functional hierarchy.

Cinque's methodological way of deriving his hierarchy is indirect and implicational, since rarely more than two or three adverbs/inflections ever co-occur within a single sentence. Thus, via transitivity and co-occurrence restrictions, he arrives at the following hierarchy (with a typical exemplary member of a given functional class of adverbs indicated):

³ I think that the modal particles characteristic of many Germanic languages (e.g. Germ. *ja*, *denn*, etc.) might be analysed as the free-morpheme realisation of some of these heads. As we will see below, other languages *do* realise the heads as particles. In addition, realisations as functional verbs are possible (auxiliaries, aspectuals, etc.). The distinction/difference between (modal) particles and adverbs is not really evident to me – both are free functional elements, that's it (, isn't it?)!

- ⊃ Mood_{irrealis} ... Mod_{possibility}: truth value modality zone reaching → ModP
- ⊃ Asp_{habitual} ... Asp_{prospective}: middle aspect zone → AspP (grammatical aspect)
- ⊃ Asp_{sg.completive(I)} ... Asp_{sg.completive(II)}: core event zone → AspP (situation aspect)

Although these zones are a handy simplification of Cinque's more fine-grained hierarchy, Tenny assumes only the zones themselves to obey hierarchical ordering restrictions w.r.t. each other, but within each zone, she assumes scope-based restrictions on relative ordering of adverbs – much to Cinque's dislike (cf. Cinque 2004:688, fn. 13)⁴. For her, adverbs are lexically specified for the eligibility to occur in a given zone (or, zones).

3.3 Cinque's functional hierarchy & other cartographies

As to other cartographies, Cinque himself, although not explicitly, at least occasionally hints to possible integrations. Take Rizzi's (1997) split CP (ForceP > TopP > FocP > TopP > FinP > IP...) as an example, which can be seen as the seminal work having initiated the cartographic enterprise. Although Rizzi's Force° and Cinque's Mood_{speech-act} seem good candidates for unification, Cinque, on p. 84, objects that "it is dubious that Mood_{speech act}° and Rizzi's Force° should be identified", the reason being that Force° precedes topicalised/focalised elements, but speech-act-adverbs follow them:

(7) Di questo, A NESSUNO, *francamente* potrei parlare.

TOP FOC SPEECH ACT

'About this, to nobody (focus) frankly I could talk.'

However, since they are able to move across the fronted material, it might be that they can target the Spec of Force° via movement (to check a feature [F]):

(8) *Francamente*, di questo, A NESSUNO potrei parlare.

FORCE TOP FOC

'Frankly, about this, to nobody (focus) I could talk'

Cinque does not address Fin°. However, in the light of proposals to unify syntactic finiteness (Rizzi's Fin[±fin]) with verbal mood (indicative, subjunctive, etc.; ultimately an inflectional kind of modality), Fin might be identified with one of the lower Mo(o)d°-heads (cf. e.g. Aygen 2004). The unification of Cinque's hierarchy with other functional domains still awaits realisation, but it seems as if at least some of Cinque's functional heads might be identified with other, independently established ones. Pollock's 1989 Mod°-head, for instance, hosting modal auxiliary verbs like *may*, *can* or *must*, might

⁴ A more generally (meta-) theoretical question concerns the ontology of cartographies (not in the real-world-sense, Benni, but in my naïve conception of stuff). Are what I call syntactic macro-categories (Chomsky's CFCs) like Infl only simplifications of richer cartographies? Are cartographies only reflections of a non-narrow-syntactic phenomenon (feature hierarchies internal to lexical items, semantic scope restrictions)? Can both macro-categories and cartographies co-exist as syntactic objects? Synchronically and diachronically? If cartographies can occur next to macro-categories in one and the same language, what is it that dictates the dynamic split of e.g. C°?

To my knowledge, attempts in this direction are few in number, all relatively recent: Boeckx (2008:ch. 4), Fortuny (2008), Gallego (2008), Lahne (2007).

correspond to Cinque's modality heads (contained in Tenny's truth-value modality zone), so that *must* should functionally correspond to *obligatorily/necessarily*⁵.

6. Sample analysis: Evidentiality (Cinque 1999:85ff.)

- *evidentiality* refers to the kind of evidence a speaker has for her assertion: visually, auditory, sensory, reported (by so. else), 'revelative' (dream), experiential, etc. (cf. Palmer 1986:66-76 for an overview)
- some languages have an elaborate system distinguishing between many of these kinds of evidence, others only make a dual distinction (unmarked direct vs. indirect, reported 'hear-say')

- (9) a. Bei den Unruhen *soll* es bisher vier Tote gegeben haben. (German; p. 86)
 ➔ modal verb
- b. Hai sentito il telegiornale? Ci *sarebbe* stato un rapimento importante. (Italian; p. 86)
 'Have you heard the news? There would have been (= it is said there was) an important kidnapping.'
 ➔ conditional verbal mood
- c. Zorrak ordaindu ahal *omen* dituzte. (Basque; p. 66)
 debts pay-off be-able QUOT Aux
 '(It is said that) they can pay off their debts.'
 ➔ particle
- d. wíra i ápári ki stao wareac. (Hidatsa [Siouan]; p. 162)
 tree 3sg grow INCH REM.PAST EVID
 'They say the tree began to grow a long time ago.'
 ➔ particle
- e. *Evidently*, Michael should drink more Doppelbock. (English)
 ➔ adverb

- ordering of high adverbs in English (and other related languages) (33ff.)

- (10) a. Honestly, I am unfortunately unable to help you.
 b. *Unfortunately, I am honestly unable to help you.
 ➔ SPEECH ACT MOOD (*honestly*) > EVALUATIVE (*unfortunately*)

⁵ In this respect, note Cinque's (2004) recent work on functional verbs and restructuring.

- c. Fortunately, he had evidently had his own opinion of the matter.
 d. *Evidently, he had fortunately had his own opinion of the matter.
 ➔ EVALUATIVE (*fortunately*) > EVIDENTIAL (*evidently*)

e. Honestly, Michael has evidently had enough Doppelbock.

- f. *Evidently, Michael has honestly had enough Doppelbock.
 ➔ SPEECH ACT MOOD (*honestly*) > EVIDENTIAL (*evidently*)

➔ adverb ordering: SPEECH ACT MOOD > EVALUATIVE > EVIDENTIAL

- ordering of 'nonclosing'/agglutinating suffixes in Korean (53f.)

(11) a. Ku pwun-i cap-hi-si-ess-ess-keyss-sup-ti-kka?
 the person-NOM catch-PASS-AGR-ANT-PAST-EPISTEM-AGR-EVID-Q
 'Did you feel that he had been caught?'
 ➔ EVIDENTIAL (*ti*) > SPEECH ACT MOOD (*kka*)

b. Ku say-ka cwuk-ess-keyss-kwun-a!
 that bird-NOM die-ANT-EPISTEM-EVALUAT-DECL
 'That bird must have died!'
 ➔ EVALUATIVE⁶ (*kwun*) > SPEECH ACT MOOD (*a*)

c. Minca-nun ttena-ss-te-kwun-yo!
 M.-TOP leave-PAST-EVID-EVALUAT-POLITE
 'I noticed that M. had left!'
 ➔ EVIDENTIAL (*te*) > EVALUATIVE (*kwun*)

➔ suffix ordering: EVIDENTIAL > EVALUATIVE > SPEECH ACT MOOD

➔ EVIDENTIAL > EVALUATIVE > SPEECH ACT MOOD ↔ SPEECH ACT MOOD > EVALUATIVE > EVIDENTIAL

7. A sample objection and how it might be countered

The variable positioning (or, 'transportability') of adverbs is a common objection to the Cinquean treatment of adverb syntax: one and the same adverb can apparently occur in different positions within a clause optionally (i.e. without change in meaning), which appears diametrically opposed to a fixed hierarchy.

- (12) a. *Foolishly* Howard may have been trying to impress you
 b. Howard *foolishly* may have been trying to impress you
 c. Howard may *foolishly* have been trying to impress you

⁶ Evaluative elements carry a sense of „surprise“, introducing a speaker's evaluation of the proposition in her utterance.

- d. Howard may have *foolishly* been trying to impress you
- e. Howard may have been *foolishly* trying to impress you

Cinque (2004:705, from Svenonius 2002:3.1)

- ⇒ not the positions of the adverbs are variable, but those of the surrounding verbal and nominal elements (V- and A-movement)
- ⇒ one possibility: (12) be accounted for by appealing to Rizzi's (2004) C-domain head Mod(ifier)^o, the target of fronted adverbs (and other scene/frame-setters, which differ from fronted argumental topics in their syntactic behaviour); in (12), then, *foolishly* might indeed have been moved, with concomitant subject raising past the fronted adverb in (12) (Sounds like Kayne, eh?)
- ⇒ but: if not adverbs, but other elements move, movement of Aux (*been*) across the trace of another Aux (t_{have}) in (12) violates the HMC (as complained by Svenonius 2002:3.1)
- ⇒ solution: adverbs *must* (sometimes) gave more than one Merge-position to account for cases like the following (homomorphy), resulting in subtle semantic-pragmatic differences

(13) a. John *cleverly* has been answering their questions.

'It was clever of John to have been answering their questions' → *subject-oriented*

b. John has been answering their questions *cleverly*.

'John has been answering their questions in a clever manner' → *manner*

↳ c. John *cleverly* has been answering their questions *cleverly* (, and not stupidly).

(cf. Kim 2000:461)

- ⇒ there are two base-positions for *foolishly*: ...<foolishly₁> may have <foolishly₂> been trying... (cf. Cinque 2004:706) → (12) takes Adv₁, (12) and (12) Adv₂. with according licit Aux-raising

SOME CONCLUDING REMARKS

- despite their optionality, adverbs are not appendices to clause structure, but an integral part of it
→ optionality does not reduce to phrase-structural disintegration
- semantic scope only calculates restrictions w.r.t. two (or more) adverbs, but does not really explain the relative positioning of these adverbs w.r.t. other non adverb-related heads, e.g. V (raised or *in situ*)
- all heads are always present in a derivation (in the numeration); if no adverb is merged in the Spec of a head, the head receives a default interpretation
- general question: What is it that governs the order of hierarchies itself, be it Cinque's, or Chomsky's simplified $C > T > v > V$?
- language acquisition: "[N]o particular acquisitional issue arises from considering the structure of the clause provided by UG as rich and articulated as that in [(6)]. The obvious consequence from assuming the universality of [(6)] is that less is left for the child to acquire. He/she will only need to recognize and locate in the appropriate structural places made available by UG the morphological and lexical material provided by his/her language" (Cinque 1999:107).

8. Guglielmo & Richard, brothers in arms?

Cinque (1999:44f.):

One desirable direct formal consequence of Kayne's (1994) restrictive version of X-bar theory – more generally of his antisymmetric view of syntax – is precisely the availability of a single specifier per projection (or adjunct, their difference being in fact neutralized). Also, while the existence of a rigidly fixed relative order of AdvPs is entirely unexpected under adjunction, it is understandable under the "location-in-Spec" hypothesis, at least if it can be argued to follow from the fixed relative order of the heads via the general Spec/head agreement relation (as we shall attempt).

Moreover, the fact that AdvPs are arguably on left branches is something that would have to be stipulated under the adjunction hypothesis, whereas it follows under the "location-in-Spec" hypothesis as Specs are normally (necessarily in Kayne's theory) taken to be on left branches.

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