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# “ADVERBS AND FUNCTIONAL HEADS” TWENTY YEARS LATER: CARTOGRAPHIC METHODOLOGY, VERB RAISING AND MACRO/MICRO- VARIATION

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**ABSTRACT:** *Adverbs and Functional Heads: a Cross-Linguistic perspective* (Cinque 1999)—one of the founding works of “Syntactic Cartography”—combines some of the developments in Syntactic Theory from the 1980s and 1990s with insightful contributions from Linguistic Typology. This paper has two interrelated goals. First, it aims to review the fundamental theses of Cinque’s monography of 1999—which are far from controversial among scholars working in Cartography—; at the same time it provides conceptual support to them. Secondly, it aims to explore some methodological tools of Syntactic Cartography presented and discussed by Cinque (1999), namely the so-called *precedence-and-transitivity tests*—after a brief discussion on methodology used to recognise the functional categories, namely Jackendoff’s 1972 criterion—and the use of the hierarchies as tools to detect intra and interlinguistic variation. With regard to this latter issue, the paper gathers data from Brazilian Portuguese, Canadian English and Colombian Spanish on verb raising. The discussion of the data not only favours Cinque’s 2017 recent updates of his theoretical approach to the cartography of the clause but also shows how Cartography offers a natural scenario to a methodological approach to both micro and macro-variation.

**Keywords:** Syntactic Cartography; Cinque’s Hierarchy; Adverbs; Functional Sequence; Verb Raising; Micro-variation; Macro-variation; Cartography; Minimalism; Universal Grammar.

## 1. Introduction

Together with the paper by Rizzi (1997) on the left periphery of the clause, Cinque’s 1999 monograph, *Adverbs and Functional Heads: a Cross-linguistic Perspective*, is (one of) the founding work(s) of Syntactic Cartography, a theoretical approach developed in parallel with the Minimalist Programme of Generative Grammar (Chomsky 1995 and successive works).

To give an idea of the sheer importance of Cinque’s (1999) book, one could recall a conference held in Athens, Greece, seven years ago: *Generative Syntax in the Twenty-first Century: the Road Ahead*. With this conference, organisers aimed at taking stock of Generative Grammar and discussing the future of the theory.<sup>1</sup> As reported by one of the organisers, Peter Svenonius, the conference had considered Cinque’s hierarchy of adverbs and functional heads to be a “good” result of the generative enterprise.<sup>2,3</sup>

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<sup>1</sup> <http://site.uit.no/castl/events/road-ahead/> [Accessed on 16 April 2021].

<sup>2</sup> <https://blogg.uit.no/psv000/2016/08/30/significant-mid-level-results-of-generative-linguistics/> [Accessed on 16 April 2021].

<sup>3</sup> In the post to his UiT blog (see the previous footnote), Peter Svenonius mentions other discoveries made within and because of Syntactic Cartography, including Cinque’s (2005) account of Greenberg’s Universal 20—in terms of what

Tracing the (still recent) history of Syntactic Cartography means going back to *Adverbs and Functional Heads*, this influential book by Guglielmo Cinque. The epistemological and methodological underpinnings of Syntactic Cartography are spread throughout its seven chapters and its hundreds of thought-provoking and detailed endnotes. In order to understand Cinque's Universal Hierarchy of Functional Categories, one shall take into account not only the preceding work within the generative paradigm, but also the research brought by the typological tradition—most of which even developed outside the generative paradigm—to which Guglielmo Cinque did justice in his attempt to treat their discoveries within a theory of Universal Grammar (UG). Furthermore, looking at *Adverbs and Functional Heads: a Cross-linguistic Perspective* over twenty years after its publication means recognising the core values of Syntactic Cartography at its inception. This is a successful research programme that has become the cradle for other cartographic approaches within the Principles and Parameters Theory, like Nanosyntax.

This work has two main goals, which are interconnected. First, it reassesses some of the fundamental arguments raised in Cinque's (1999) book and brings up some conceptual arguments supporting them. Secondly, the paper reviews some methodological tools of Syntactic Cartography and shows their relevance to Linguistic Theory. This is done in parallel to the discussion on some further developments on the syntax of the "IP space" with the presentation of some data on verb raising which gives support to the empirical appropriateness of the Cartographic programme in light of the general investigation on (micro and macro-) parametric variation in Syntax.

In order to achieve these goals, the paper is organised and structured as follows. First of all, it begins by reviewing the fundamental tenets of Cinque (1999) which are largely assumed by scholars working on the Cartographic programme. It brings some conceptual support to them while, at the same time, it presents the theoretical advantages of these cartographic assumptions. This is done in Section 2, which is followed by Section 3, more concerned with the cartographic methodology used to find out the functional sequences—whose *démarche* has been profoundly influenced by Cinque's own 1999 methodology. Within this Section, Section 3.1 presents the *precedence-and-transitivity* tests, the most cartographic methodological tool to arrive at the functional hierarchies of the extended projections of distinct syntactic domains, while Section 3.2 discusses another methodological tool in Syntactic Cartography—considered important by Cinque and Rizzi (2010)—, which is the varying height of (obligatory, optional and forbidden) movements, both intra-linguistically and cross-linguistically. The presentation and discussion of some data on verb raising (from Brazilian Portuguese, Canadian English and Colombian Spanish)—thereby lending

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Cinque calls *the left-right asymmetry of natural languages*—, which, in Svenonius' own words, "may generalise to other categories" which, in fact, it does. See Cinque (1996, 2013a), Abels (2016) and section 2 of this paper.

support to the conjecture made by Cinque (2017) on the need for assuming (at most) three functional projections for each and every one of his categories from the Universal Hierarchy—is the main issue of section 4. Section 5 wraps up this paper.

## 2. On some fundamental tenets of “Adverbs and Functional Heads”

Two fundamental principles as mentioned in Cinque (1999) form the basis of the epistemology of Cartography. One of them refers to the universality of functional categories. As the functional structure is part of our biological endowment (Cinque 1999, 2004, 2013b; Benincà, Munaro, 2011; Brugè et al., 2012), Cartography has the view that all languages present the whole set of functional categories of the sentence and its phrases, an idea already present in Cinque (1999). The other principle is based on the status of functional categories as “grammatical primitives”—see Cinque (1999, section 6.3; 2004), Cinque and Rizzi (2010), Rizzi (2013), and the discussions in Fortuny (2008) and van Craenenbroeck (2009).

The way scholars working in syntactic cartography interpret Chomsky’s (2001) *Uniformity Principle* is, thus, very predictable in a sense.<sup>4</sup> As argued by Cinque and Rizzi (2010), the functional sequences—which, in other words, are the hierarchies of functional categories from distinct extended projections—, being a construct of the initial stage (UG) of the language faculty (Cinque 1999, 2004, 2013b; Benincà and Munaro 2011; Cinque and Rizzi 2010; Rizzi and Cinque 2016), would not show cross-linguistic variation. This means that the universality of functional categories is out of any discussion among “cartographers” (Cinque and Rizzi 2010), although some of them do adopt a “lighter” version (in the sense of van Craenenbroeck 2009) of Cartography, by not assuming that all functional categories of the clause do “project” in the derivation of each singular sentence, regardless of its sentence typing.

This first principle is clearly stated beforehand in the *Preface* of the monography where Cinque (1999) mentions two frequent assumptions—by generativists at that time—regarding the very nature of Universal Grammar. The first assumption is that UG would allow a wide cross-linguistic variation with regard to the number, order and type of functional clausal categories. The second assumption is that UG would allow different sentence types to have different functional sequences. In this book, Cinque (1999) seeks to argue against these two statements by claiming — based on an examination of a large number of languages from different families—that “no such variation is allowed by UG and that the same number, type and order (hierarchy) of functional projections holds across languages and clause types, despite apparent counterevidence” (Cinque,

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<sup>4</sup> This principle is stated as follows: “[i]n the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances” (Chomsky 2001: 2).

1999: v). These two statements, as presented in Cinque (1999) are by no means controversial among “Cartographers”. Cinque (2013a, 2013c, 2017) still sticks to his guns on that issue by offering an original treatment for what he calls the *left-right asymmetry* of natural languages, a generalisation on systematic word order types within the extended projection of some lexical categories like the V, the N, the A(djective), the P, etc.

Turning now to the other principle—the belief that functional categories are primitives of grammar—the proposal made by Cinque (1999) is that they are a construct of the language faculty. They would be present in all languages as they are encoded in UG, the initial stage of the language faculty. This idea has been defended by Cinque since then (see Cinque 1999, chapter 6; 2004; 2013b). The analyst’s task would almost be the same as that of a child acquiring a language: based on the morphophonological evidence available, the scholar would have to describe the categories present in the system(s) they analyse.

Although unequivocally accepted among scholars working on Cartography, this assumption regarding the universality of functional categories is somewhat enshrouded in controversy for Generative Grammar (Thráinsson 1996). Fortuny (2008: 118), for instance, argues that, as functional categories “feed” the requirements of the C-I system, there would be no reason to see them as primitive. From the cartographic point of view, Fortuny’s objection shifts the problem to the interface with the semantic component. Hence, it fails to explain why only a very restricted set of cognitive notions has been grammaticalised in the form of functional categories, among the languages of the world (Cinque 1999, 2004, 2013b). The interesting question to be asked here is: why has no typological work ever unearthed other (cognitively) plausible categories: “divinity”, “love”, maybe even “danger”? The fact is that one always finds the same categories in languages already described. Cinque (1999, 2004, 2013b) well points out that many semantic notions are not even morphophonologically grammaticalised, in spite of their importance across different cultures:

As hinted at in Cinque (1999: 224 fn.10 and related text), a purely semantic scope principle of the conceptual–intentional interface provides by itself no understanding of why we find in the languages of the world the specific classes of adverbs (and corresponding functional heads) that we find, rather than some different assortment. Surely there are many more semantic notions in our conceptual–intentional world than those that receive grammatical expression (are grammaticalized) in the languages of the world. (...) Clearly, it is an ‘accident’ of evolution if UG has come to look the way it looks, with certain functional distinctions (and related adverb classes) rather than others. This must be encoded in the functional portion of the UG lexicon, and it seems reasonable to require that there be a formal means to relate the functional head distinctions to the corresponding AdvP distinctions, irrespective of the possibility that the relative scope relations among such UG entities ultimately reflect a more general cognitive order of scope among them. (Cinque 2004: 685–686)

Thus, Cinque (1999, 2004) does not deny that the hierarchies could reflect semantic principles. In fact, no Cartographer would deny this, at a first glance (see Cinque and Rizzi 2010). As stated in Cinque (1999, chapter 6), epistemic modality, which has scope over tense, is merged above it: it is only possible to evaluate a proposition if it is already anchored in tense. Fortuny (2008, chapter 4) tries to show how to derive the order of the functional categories from the inflectional domain based on “semantic principles”. Nonetheless, he has to resort to different “semantic principles” to explain the constraints that would (allegedly) restrict the order of adverbs and functional heads (see Fortuny 2008: 99ff.). On the other hand, Cinque (1999) only needs one methodological resource to arrive at the *f(functional)-sequence* proposed for the extended projection of the verb: the *precedence-and-transitivity tests*. Those are the most important methodological tools in Cartography, as I discuss in the next subsection.<sup>5</sup>

The idea that functional hierarchies are not a permanent property of Narrow Syntax and that *Merge* is the only irreducible component of UG is still the most radical minimalist view up to the present, nevertheless (Chomsky, Gallego and Ott 2019). On the other hand, Cartographers argue that in spite of this, Cartography and Minimalism are brothers in arms with a very fruitful and harmonious division of labour within the Principles and Parameters Theory (Cinque and Rizzi 2010; Rizzi and Cinque 2016). So, in the Cartographic view, besides *Merge*, UG would also be endowed with functional categories hierarchically ordered in *f(functional)-sequences* (Cinque 2006; 2013b), with one f-sequence for each syntactic domain (the extended projection of the N, the extended projection of the V, and so on). The minimalists argue that the *Inclusiveness Condition* would rule out “the introduction of features that are not inherent to lexical items, such as discourse-related features (topic, focus, etc.) assumed in the cartographic tradition and other approaches” (Chomsky, Gallego and Ott 2019: 237). The problem with such a reductionist view is not merely a weakening of Narrow Syntax. From the Cartographic perspective, the empowerment of the interface levels means assuming that many possible word orders would have to be constrained by the interface levels. The minimalist assumption is that linear order is attributed to mechanisms of linearisation at PF. The core issue from the Cartography side is: if Narrow Syntax does not deal with f-sequences

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<sup>5</sup> One of the two anonymous reviewers called my attention to the fact that what one should consider, in this context, as primitives is “the status of functional categories” rather than their relative order which can also receive independent explanations which are not incompatible, in essence, with the Cartographic endeavour. As pointed out by Rizzi (2013: 213, fn. 4), “[a]ll cartographic discoveries on the left-peripheral hierarchy explicitly or implicitly assumed the possibility of further explanations for the observed hierarchy, stemming either from interface considerations or independent grammatical principles.” Thus, in the realm, for instance, of the Italian left-periphery, as shown by Abels (2012), some of its ordering effects can get an explanation based on Starke’s (2001) and Rizzi’s (2004) version of Relativised Minimality (Rizzi 1990) based on features. There is, however, no contradiction between this type of explanation for the left-peripheral f-seq and the attempt to draw detailed maps of the CP field by Cartographers: “there is no inconsistency between the endeavor of drawing precise cartographic maps and the attempt to pursue “further explanations” of cartographic properties: in fact the two research aims presuppose and complement each other” (Rizzi 2013: 214).

(or hierarchies), how would overgeneration be banned? Let us explain by means of an example. If one considers Cinque’s universal hierarchy of adverbs and functional heads given below,

(1) The Universal Hierarchy of Functional Projections (Cinque 1999:106, as modified in Cinque 2006a)<sup>6</sup>

*[frankly* Mood<sub>SpeechAct</sub>  
*[luckily* Mood<sub>Evaluative</sub>  
*[allegedly* Mood<sub>Evidential</sub>  
*[probably* Mod<sub>Epistemic</sub>  
*[once* T<sub>Past</sub>  
*[then* T<sub>Future</sub>  
*[perhaps* Mood<sub>Irrealis</sub>  
*[necessarily* Mod<sub>Necessity</sub>  
*[possibly* Mod<sub>Possibility</sub>  
*[usually* Asp<sub>Habitual</sub>  
*[finally* Asp<sub>Delayed</sub>  
*[tendentially* Asp<sub>Predispositional</sub>  
*[again* Asp<sub>Repetitive(I)</sub>  
*[often* Asp<sub>Frequentative(I)</sub>  
*[willingly* Mod<sub>Volition</sub>  
*[quickly* Asp<sub>Celerative(I)</sub>  
*[already* T<sub>Anterior</sub>  
*[no longer* Asp<sub>Terminative</sub>  
*[still* Asp<sub>Continuative</sub>  
*[always* Asp<sub>Continuous</sub>  
*[just* Asp<sub>Retrospective</sub>  
*[soon* Asp<sub>Proximate</sub>  
*[briefly* Asp<sub>Durative</sub>  
*[(?)* Asp<sub>Generic/Progressive</sub>  
*[almost* Asp<sub>Prospective</sub>  
*[suddenly* Asp<sub>Inceptive</sub>  
*[obligatorily* Mod<sub>Obligation</sub>  
*[in vain* Asp<sub>Frustrative</sub>  
*[(?)* Asp<sub>Conative</sub>  
*[completely* Asp<sub>SgCompletive(I)</sub>  
*[tutto* Asp<sub>PlCompletive</sub>  
*[well* Voice  
*[early* Asp<sub>Celerative(II)</sub>  
*[?* Asp<sub>Inceptive(II)</sub>  
*[again* Asp<sub>Repetitive(II)</sub>  
*[often* Asp<sub>Frequentative(II)</sub>  
**Verb**

they are likely to agree that only the combinations allowed by this hierarchy will give rise to grammatical sentences. This amounts to saying that Merge is somewhat constrained by the hierarchy itself, which means that the only possible combinations of the elements from (1) are those allowed by this hierarchy. Merge is, thus, constrained by the hierarchy which is a sort of “map”—or “clock” (see Williams 2009)—keeping tabs on the time an element is taken from the lexical array and integrated into the work space.

<sup>6</sup> This modified version is quoted in a handout by David Pesetsky: [http://ocw.mit.edu/courses/linguistics-and-philosophy/24-902-language-and-its-structure-ii-syntax-fall-2003/lecture-notes/class\\_1\\_handout.pdf](http://ocw.mit.edu/courses/linguistics-and-philosophy/24-902-language-and-its-structure-ii-syntax-fall-2003/lecture-notes/class_1_handout.pdf) [Accessed on 14 April 2020]

Let us now speculate on the possible combinations of any two of those 36 adverbs in a given sentence by considering two hypothetical scenarios. The *first scenario*—let us call it “the Cartographic view”—predicts that, besides merge (“recursion” in the sense of Hauser, Chomsky and Fitch (2002)), UG (as a characterisation of the initial state of the Language Faculty) does have constraints on word order: the functional sequences, like the hierarchy in (1), *guides* and *constrains* the possible combinations given by merge. Thus, the Language Faculty (in a narrow sense—say, FLN (as in Hauser, Chomsky and Fitch 2002)) would have more than just *Merge*. Hierarchies would also be part of the FLN. The second scenario—call it “the reductionist view”—would understand that FLN is whittled down to merely recursion. Both the Cartographic and the reductionist views are compatible with the Minimalist Programme. However, Hauser, Chomsky and Fitch (2002: 1571) do recognise that “[a]t a minimum, then, FLN includes the capacity of recursion.” *Thus, there might be more than just recursion*. Cartographers, on the other hand, do believe that FLN has, besides the simplest operation *merge*, hierarchies constraining the combinations made possible by recursion (see, among others, Cinque 1999, 2004, 2013b; Cinque and Rizzi 2010; Benincà and Munaro 2011; Brugè et al. 2012; Rizzi and Cinque 2016).

Thus, if one considers the possible combinations of any two out of those 36 adverbs in a sentence, the Cartographic view would argue that Narrow Syntax would generate 630 combinations in a given language, given by the result of the application of the permutation formula indicated in (2) divided by 2, because the hierarchical order *does* matter:

$$(2) \quad P_{(n,r)} = n! / (n - r)!$$

where  $n$  is the number of objects taken, namely, the number of hierarchical elements from (1), i.e., 36; and  $r$  is the number of objects taken at a time, namely, 2:

$$(2') \quad P_{(36,2)} = 36! / (36-2)! = 1260$$

Since order *does* matter—as the combinations of the elements from (1) are constrained by the hierarchy in (1) itself, the result in (2') has to be divided by two:

$$(2'') \quad 1260 / 2 = 630 \text{ possible combinations}$$

All in all, according to the Cartographic view, the number of combinations of any two of those 36 elements at a time in a given sentence is 630.



In contrast, the reductionist view would have twice this number, as no constraint on each of the two possible combinations would be enforced by Narrow Syntax. Thus, no further division by 2 should be made:

$$(3) \quad P_{(36,2)} = 36!/(36-2)! = 36 \times 35 \times (34!)/(34)! = 1260$$

Generally speaking, the Cartographic answer to the puzzle is somewhat more methodologically minimalist, in a sense, than the reductionist solution created by the sole merge, as the number of the only possible combinations of the hierarchical elements in (1) is given by (2’), which is half the number of combinations made possible by the reductionist interpretation of the FLN (see (3)).

Whether accepting or rejecting the Cartographic solution—which states that, besides Merge, FLN would also count on with the hierarchies of distinct “extended projections”—, the reductionist solution, which states that linear order is a matter of PF, would have to clearly define the very powerful machinery that would rule out all the possible mathematical combinations of the hierarchical elements from (1) as given by (2, 2’, 2’’).

In any case, whether the orders in (2) are ruled out by PF (Chomsky et al. 2019: 233ff.) or by LF (Fortuny 2008), the assumption of (set/pair-)Merge in itself would give rise to a number of impossible orders that would have to be discarded by PF and/or LF whenever two or more elements from the hierarchy in (1) are combined in a given sentence. The Cartographic answer to this mind-boggling number of impossible orders given, for example, by the combination of any two of those hierarchical elements from (1), namely 1260 (cf. (3)), is that they are tightly constrained by FLN. The only possible combinations allowed whenever two elements are combined in the sentence domain are those given in (2), which brings out the result of the recursive combination, through using Merge, of the functional categories in only one possible order (namely, that of (1)), which Cinque (1999) arrived at based on *precedence and transitivity* tests, one of the most Cartographic methodological tools. This methodology is discussed in the next section.

### 3. Cartographic methodology

#### 3.1. *Precedence-and-transitivity* tests: the most Cartographic methodological tool

Each functional projection of the hierarchy given in (1) of the previous section would (potentially) have an adverb in its specifier and a particle/(bound or free) morpheme/restructuring verb/modal verb/etc. in the functional head on the right. To establish his “Universal Hierarchy of functional projections”, Cinque (1999) turns to a methodological tool which has become the most

cartographic methodological device for establishing the order of the categories in the functional sequences: the *precedence-and-transitivity* tests. However, the actual departure point was the establishment of the categories belonging to the functional structure of the clause. In order to do so, he turns to Jackendoff's (1972, p. 87ff.) criterion whereby membership to a given class/category can be determined by the constraints on the joint occurrence of two elements belonging to the same class/category and having the same structural type (e.g. head/head or phrase/phrase) which is ruled out.<sup>7</sup> See, for instance, the impossible co-occurrence of two colour adjectives in (4a) in either order and the ungrammaticality of (4b) where two evaluative adverbs also occur together in both orders.

- (4) a. \*the white black/black white vase (J. Mattos, p.c.)  
 b. \*This time next year Bolsonaro will regrettably unfortunately/unfortunately regrettably still be running the country (J. Mattos, p.c.)

Once the classes of adverbs are determined—based on this, say, Jackendoffian criterion—, Cinque takes combinations of two adverbs of distinct (semantic) classes in the two possible relative orders, as illustrated in (5-6), to give their position in the functional sequence.

- (5) a. AdvP<sub>A</sub> > AdvP<sub>B</sub><sup>8</sup>  
 b. \*AdvP<sub>B</sub> > AdvP<sub>A</sub>  
 (6) a. AdvP<sub>B</sub> > AdvP<sub>C</sub>  
 b. \*AdvP<sub>C</sub> > AdvP<sub>B</sub>

The combination of the *precedence* tests in (5) and (6) gives, by *transitivity*, the (hierarchical) extract in (7):

- (7) AdvP<sub>A</sub> > AdvP<sub>B</sub> > AdvP<sub>C</sub>

This methodological expedient—the *precedence-and-transitivity* test—is shown through the Catalan examples in (8-10), from Del Río (2016), who tested Cinque's hierarchy in that language:

- (8) Mood<sub>SpeechAct</sub> (*francament* 'frankly') > Mood<sub>Evaluative</sub> (*afortunadament* 'fortunately')

<sup>7</sup> One could say that Jackendoff's criterion is a way to formalise the "One Feature, One Head" Principle as proposed by Kayne (2005).

<sup>8</sup> ">" is intended to mean "precedence".

- a. Fas                      francament      afortunadament una crema catalana      molt bona  
make.PRES.2.SG frankly      fortunately      a cream Catalan      very good  
'Honestly, you fortunately make a very good Catalan cream'
- b. \*Fas afortunadament francament una crema catalana molt bona
- (9) Mood<sub>Evaluative</sub> (*afortunadament* 'fortunately') > Mood<sub>Evidential</sub> (*suposadament* 'supposedly')
- a. El Barça              afortunadament suposadament guanyarà      el partit avui.  
The Barça      fortunately      supposedly      win.FUT.3SG the match today  
'Fortunately, Barça will supposedly win the match today'
- b. \*El Barça suposadament afortunadament el Barça guanyarà el partit avui.
- (10) Mood<sub>Evidential</sub> (*suposadament* 'supposedly') > Mod<sub>Epistemic</sub> (*provablement* 'probably')
- a. (?)Els preus del mercat suposadament provablement augmentaran demà.  
The prices of-the market supposedly      probably rise.FUT.3PLU tomorrow  
'Market prices are supposed to probably rise tomorrow.'
- b. \*Els preus del mercat provablement suposadament augmentaran demà.

These data in (8-10) allow one to arrive at the hierarchical extract in (11):<sup>9</sup>

- (11) Mood<sub>SpeechAct</sub> > Mood<sub>Evaluative</sub> > Mood<sub>Evidential</sub> > Mod<sub>Epistemic</sub><sup>10</sup>

<sup>9</sup> Based on Koster (1978), Cinque (1999: 18) shows that V2 languages provide further support to his hierarchy, given that the raising of a given class of adverb to the left-periphery (for the well-known V2 requirements) must adhere to the Universal Hierarchy of adverbs. In an embedded sentence, the only possible order is the hierarchical one. It is exemplified by (i), below, where the co-occurrence of *belaas* 'unfortunately' and *waarschijnlijk* 'probably' is only possible in the hierarchical order, i.e., if *belaas* 'unfortunately' precedes *waarschijnlijk* 'probably' (ia):

- (i) a. Het is zo dat hij *belaas waarschijnlijk* ziek is.  
'It is the case that he unfortunately probably sick is.'  
b. \*Het is zo dat hij *waarschijnlijk belaas* ziek is.

The raising of the adverb to the left periphery to comply with V2 requirements is only possible when the hierarchy is obeyed. Thus, the raising of *waarschijnlijk* 'probably' gives rise to an ill-formed sentence if, on its movement upwards, it finds the adverb *belaas* above it, thus inducing a Relativised Minimality violation (see (iia)). On the other hand, the raising of *belaas* 'unfortunately' to CP does not give rise to this violation, as this adverb enters the derivation after the merger of *waarschijnlijk* 'probably' (iib).

- (ii) a. \**Waarschijnlijk* is hij *belaas* ziek.  
'Probably is he unfortunately sick.'  
b. *Helaas* is hij *waarschijnlijk* ziek.  
'Unfortunately is he probably sick.'

However, as pointed out to me by one of the anonymous reviewers, movement of a given (lowest) adverb over an adverb merged above is licit if the former gets focalised (see Rizzi 2004).

<sup>10</sup> The first mention of "transitivity" in Cinque's book is given on page 5: "Given that *mica* precedes *già* and *già* precedes *più*, by transitivity we correctly expect *mica* to precede *più*".

By turning to this methodological device, Cinque tested the relative position of the other adverbial classes, arriving at the Universal Hierarchy already given in (1) of the previous section.<sup>11</sup> To arrive at a hierarchy of the corresponding functional heads, Cinque turned to what is, in essence, the same methodology by taking data from typological work on languages from different families) (see chapter 3 of his 1999 monography). At the end, he convincingly showed that adverbs and functional heads match in number, relative order and semantic type (Chapter 4 of the same monography).

In a nutshell, the universal hierarchy is reached based on the order of different adverbial classes, which matches the order of the corresponding functional heads. This is, in itself, an important piece of evidence for the functional nature of adverbial modifiers. Figure 1 represents the relative position of the adverbs in (10a), repeated below for convenience. In this representation, *suposadament* ‘supposedly’, the evidential adverb, occupies the specifier of Mood<sub>Evidential</sub>. *Provablement* ‘probably’ is merged into the specifier of Mod<sub>Epistemic</sub>. Although orthogonal to the main discussion, the derivation of (10a) also involves the raising of the V(P) *augmentaran* ‘will rise’<sup>12</sup> and of the external argument to the specifier of SubjP. That guarantees that the nominative case features of *els preus de mercat* be valued/checked/assigned.<sup>13</sup>

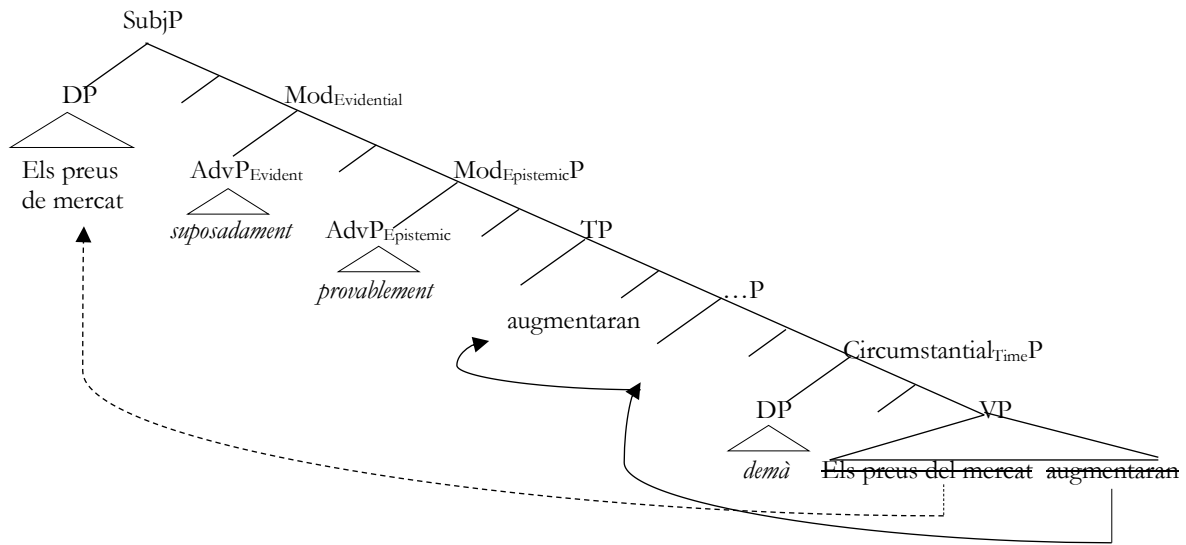
- (10) a.        (?)Els preus del mercat suposadament provablement augmentaran demà.  
                   The prices of-the market supposedly    probably            rise.FUT.3PLU tomorrow

<sup>11</sup> Cinque (1999, chapter 1) first tested his hierarchy of adverbs based on Italian and French data. Later, he tested the results in another thirteen languages (English, Albanian, Chinese, Hebrew, Serbo-Croatian etc.). Many other scholars have tested Cinque’s predictions in their own languages. Hence, the hierarchy has been confirmed for Brazilian Portuguese (Sant’ana 2005, 2007, 2010), Hindi (Bhatia 2006), Afrikaans (Smit 2013), Catalan (Del Río 2016), Venezuelan Spanish (García 2018), and Chilean Spanish (Wechsler 2021), among many others. Tescari Neto (2013, 2019) discusses some of the apparent counter-arguments to Cinque’s (1999) hierarchy, relating such arguments to methodological mistakes in their analyses. The issue on the interaction of order and scope of adverbs is still open for debate, nonetheless (see Zimmermann 2017: 35ff).

<sup>12</sup> At this point, it is not relevant whether V raising is an instance of head or phrasal movement. Thus, the derivation suggested in Figure 1 is essentially compatible with both. Of course, the assumption of a Larsonian structure for the merger of the arguments (Larson 1988; Chomsky 1995) would force the extraction of all arguments from the *n*P/VP much in the spirit of the ‘Full Evacuation Principle’ as proposed by Laenzlinger and Soare (2005: 19). If one assumes a radical version of Cinque’s (2013a, 2013c, 2017) *left-right* asymmetry of natural languages (whereby all arguments are merged above the VP, in dedicated specifier positions (Cinque, 2006, 2013a))—and I will assume this contention in section 4 (see, especially fn. 21)—, then Full Evacuation is no longer necessary.

<sup>13</sup> Here it is important to note that the (final) position of the Subject does not seem to be fix within the Middlefield, probably being open to cross-linguistic variation. As observed in Cinque (1999, chapter 5) agreement may be generated on the left-edge of each functional projection of the hierarchy given in (1) which corresponds to his “DP-related functional projections”. Laenzlinger (2011) also suggests that among the functional projections of (1) there are potential SVO projections (where S stands for Subject; V, Verb; and O, Object), being the landing sites for arguments and V-related material. Cardinaletti and Quarezemin (2017) argue, on Cartographic grounds, that two functional projections are needed for the valuation of the features associated with subjects (namely, [Spec,SubjP] and [Spec,TP]). Pinpointing the exact loci of these two functional projections among the hierarchy in (1) may be a matter of intra-linguistic and cross-linguistic variation. This means that different types of sentences may instantiate different locations for these two positions associated with Subjects in one language and across different varieties, an issue that is still an open question, in spite of its importance.

‘Market prices are supposed to probably rise tomorrow.’



**Fig. 1: Representation of the derivation of (10a)**

Though not incompatible with core minimalist assumptions,<sup>14</sup> Cinque’s representation of the IP is clearly much more articulated than the ordinary representation in minimalism. Each functional category of his hierarchy necessarily comes with two values, one default and one marked. As shown in this section, the hierarchy is built based on *precedence-and-transitivity tests*, one of the two most important methodological devices in Cartography (Cinque and Rizzi, 2010). The other source, developed in important papers from Generative Grammar—like the work by Pollock (1989) on verb raising—is the topic of discussion in the next subsection.

### 3.2. Intra-linguistic and cross-linguistic variation with respect to different landing sites for movements: another Cartographic methodological tool

The assumption of a fine-grained structure like Cinque’s hierarchy presented in (1) of section 2 raises the issue of the universality of functional categories—the first assumption of the book by Cinque (1999), as seen in the beginning of section 2. All languages (would) share the same inventory of functional categories and the same principles of phrase and clause composition. Hence, cross-

<sup>14</sup> Cinque’s hierarchy and Syntactic Cartography as a whole are not incompatible with Chomsky’s (1995) minimalist spirit, as Cartography follows minimalist guidelines stating that the postulation of functional categories “must be justified either by output conditions (phonetic and semantic interpretation) or by theory internal arguments.” (Chomsky 1995: 24) Cartographers are used to paying attention to this minimalist methodological guideline: only those categories which prove to have independent semantic content and are morphophonologically lexicalised—preferentially in a one-to-one transparent way, as in the case of agglutinating languages like Turkish or Korean—are considered functional projections in Cartographic works. This is clear adherence to the minimalist assumption just mentioned which limits the number of functional categories on grounds of output conditions. Cinque (2013a, 2017) also assumes that each projection of his hierarchy can potentially merge with a head whose specifier will serve as landing site for movements, an issue to which I will take up again in section 4.

linguistic variation is not explained in terms of *f*-sequence composition, as all languages have the same number (and type) of functional categories. In addition to the way functional categories are realised—either overtly or covertly—, variation is explained by means of different types of movements that may target different levels in the hierarchy (Cinque, 2006: 3-4).<sup>15</sup> The raising of a given category to different levels in one language and across different languages has also been assumed as a methodological device by the people working on Cartography, as pointed out by Cinque and Rizzi (2010). The authors cited Pollock’s work (Pollock, 1989) on the intra-linguistic and cross-linguistic variation regarding the height where different forms of the main verb go in English and in French, from a comparative perspective. In fact, these movements may provide indirect evidence for the existence of these underlying Cartographic hierarchies.

One clear example of this intralinguistic and crosslinguistic variation regarding syntactic movements can be illustrated by means of verb raising. By assuming, in the spirit of Pollock (1989), that adverbs do not raise and that it is the V that raises over them, Cinque (1999) convincingly shows, based on the data presented in (12-14), that the active past participle raises more in Italian (12) than it does in Logudorese Sardinian (13). While in the former it must raise over *tutto* ‘everything’ (cf. (12b,c), in the latter it only has to raise over *bene* ‘well’, but not any higher (cf. (13c,d)). In French, on the other hand, the active past participle cannot raise above *bien* ‘well’ (cf. (14)). The data in (12-14) are presented and discussed in Cinque (1999: 45-46).

(12) *Italian*

a. Da allora, non hanno di solito mica più sempre *rimesso* completamente tutto bene in ordine.

Since then, not have usually not any longer always put completely everything well in order  
 ‘Since then, they haven’t usually not any longer always put everything well in order.’

b. Da allora, non hanno di solito mica più sempre completamente *rimesso* tutto bene in ordine.

c. \*Da allora, non hanno di solito mica più sempre completamente tutto *rimesso*  
 bene in ordine.

d. \*Da allora, non hanno di solito mica più sempre completamente tutto bene  
*rimesso* in ordine.

(13) *Logudorese Sardinian*

a. \*Apo bene mandigadu.

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<sup>15</sup> One of the anonymous reviewers has asked “what are the parametric triggers for such differences (in terms of verb movement)?” Though the answer for this question is not clear, this is, of course, an important issue for Cartography within the context of the Principles and Parameters Theory. I would say that it is something still in need of concrete answers, although it is quite likely that the key to its understanding relies on the head-directionality parameter as approached in Cinque (2005, 2006, 2009, 2013a,b,c, 2017), since head-initial languages, for instance, tend to apply VP raising in the whose-pictures mode of pied-piping.

- Have well eaten  
 ‘I’ve eaten well’
- b. Apo mandigadu bene.
- c. *Apo tottu mandigadu.*  
 Have all eaten  
 ‘I’ve eaten everything’
- d. Apo mandigadu tottu.
- (14) *French*
- a. *Il en a bien compris à peine la moitié.*  
 ‘He has of it well understood hardly half.’
- b. \**Il en a compris bien à peine la moitié.*<sup>16</sup>  
 ‘He has of it understood well hardly half.’

Along the lines of Cinque (1999), Tescari Neto (2019a) takes Brazilian Portuguese (BP) and three South American varieties of Spanish (namely Colombian (CS), Venezuelan (VS) and Peruvian (PS) Spanish) to detect the different heights to which the active past participle must go. The results are summarised in Table 1. While the active past participle must raise past the Mod<sub>Obligation</sub> adverb corresponding to *obligatorily* in the Spanish varieties, the mandatory raising of the active past participle in BP is to one notch below.

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<sup>16</sup> One of the reviewers has, however, pointed out that in French the manner adverb *parfaitement* ‘perfectly’ has a rather different distribution. Thus, like *bien* ‘well’, it can be found between the adverb and the participle (i). Unlike *bien*, it can be found to the right of the participle (ii–iii):

- (i) *Il a parfaitement compris la question*  
 He has perfectly understood the question  
 ‘He understood the question perfectly’
- (ii) *Il a compris la question parfaitement*
- (iii) *Il a compris parfaitement la question.*

(iii) is very telling in the present context as it might suggest that the results reported for (14) are a idiosyncrasy of the lexical item *bien*. So, if one replaces Pollock’s *bien* ‘well’ in (14b) by *parfaitement* ‘perfectly’, the judgment is different, as pointed out by the reviewer:

- (iv) *Il en a compris parfaitement à peine la moitié*  
 ‘He has of it perfectly understood hardly half.’

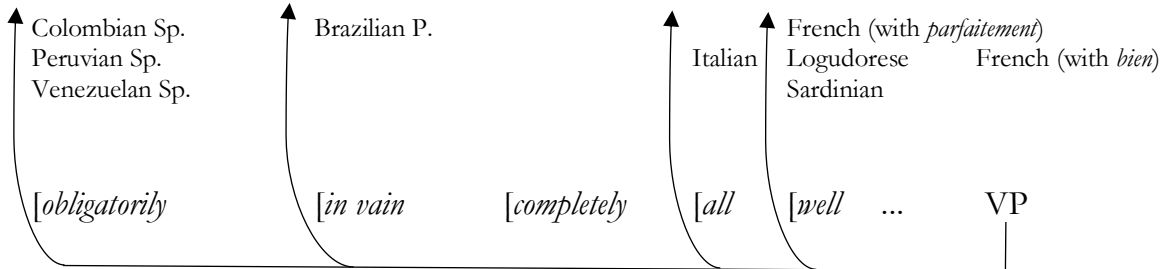
This is why, in the cline given in Figure 2 (the figure that follows, in the text), I have discriminated between the relative position of the French participle with regard to *bien* ‘well’ and *parfaitement* ‘perfectly’: the participle would raise over *parfaitement*. If the participle can raise past the manner adverb *parfaitement* ‘perfectly’, the ungrammaticality of (14b) should not probably be due to V raising, but caused by a different, independent reason.

Corresponding adverb in English	Category	AdvP-V-Object				V – AdvP – Object			
		BP	CS	PS	VS	BP	CS	PS	VS
<i>obligatorily</i>	Mod <sub>Obligation</sub>	✓	*	*	*	✓	?	✓	✓
<i>in vain</i>	Asp <sub>Frustrative</sub>	?	*	*	*	✓	✓	✓	✓
<i>completely</i>	Asp <sub>SgCompletive(I)</sub>	?	*	*	*	✓	✓	✓	✓
<i>everything</i>	Asp <sub>PlCompletive</sub>	*	*	*	*	✓	✓	✓	✓
<i>well</i>	<i>Voice</i>	*	*	*	*	✓	✓	✓	✓
<i>early</i>	Asp <sub>Celerative(II)</sub>	*	*	*	*	?	✓	✓	✓
<i>out of nowhere</i>	Asp <sub>Inceptive(II)</sub>	??	*	*	*	✓	✓	✓	✓
<i>again</i>	Asp <sub>Repetitive(II)</sub>	??	*	*	*	✓	✓	✓	✓
<i>often</i>	Asp <sub>Frequentative(II)</sub>	??	*	*	*	✓	✓	✓	✓

Key: ✓: grammatical; ?/?: marginal; \*: ungrammatical

**Table 1: The position of the active past participle relative to the lowest AdvPs and the Object in Brazilian Portuguese and in three South American varieties of Spanish (Adapted from Tescari Neto 2019a: 755)<sup>17</sup>**

The results in (12-14) and those presented in Table 1 would give rise to the following *cline* on the different heights to which the active past participle must raise in Romance languages:<sup>18</sup>



**Figure 2: Cross-linguistic variation regarding the height where the active past participle raises in Romance Languages**

All else being equal, there is no doubt that *Adverbs and Functional Heads* allows one to see a wide range of microvariation between languages. In a debate after a conference in 1996 at the University of Brasília, Brazil, Chomsky was asked about the status of adverbs and adjunction in the

<sup>17</sup> One of the reviewers has asked me about the V-O-Adv order in these four languages and the parametric variations concerning the past participial verb movement. I refer the reader to Tescari Neto (2019a) where this particular order (V-O-Adv) is largely discussed not only with regard to the raising of the active past participle but also with regard to the raising of other V forms. According to Tescari Neto (2021), the preference for the V-O-Adv order over the V-Adv-O (when it comes to low and medial adverbs) in Angolan and in Mozambican Portuguese—an analysis which I feel can be extended to BP and the varieties of Spanish reported in Table 1—is mainly due to the head-initial status of these languages.

<sup>18</sup> This cline would be expanded if we took into account Schifano's (2018) study. Also see Tescari Neto (2020).



Minimalist Programme. Chomsky quoted Cinque's (alternative) analysis—which appeared three years later in *Adverbs and Functional Heads*:

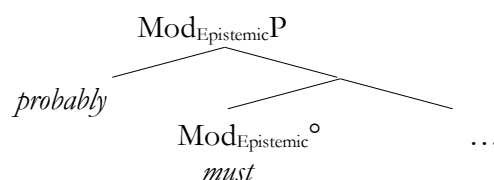
There is a book which is due to be published by a very good Italian linguist, Guglielmo Cinque, and which is going to be published in English, though I do not recall the name of the publisher. The book is the result of a work project he has been developing for a couple of years. He has tried to show that adverbs have universal positions, and that these positions are universal for all languages, and that languages only differ with respect to the landing site for verb raising among these adverbs. (Chomsky 1998: 73, translation mine).

An important issue of Cinque's (1999) monography—which was pointed out by Chomsky before its publication—is the acknowledgment of adverbs as pivots around which other categories may move. Thus, adverbs can be used to detect movements. This amounts to saying that, in addition to the *precedence-and-transitivity* tests, the different heights of the raising of a given constituent can also methodologically contribute to draw cartographic hierarchies rather than just to take advantage of these hierarchies as methodological tools to pinpoint the position of other elements along the f-sequence.

The next section goes one step further in order to point out some changes in the way the hierarchy is integrated in the derivational history of a sentence.

#### 4. Verb raising across languages: macro and micro-variation in support of updates as proposed by Cinque (2017)

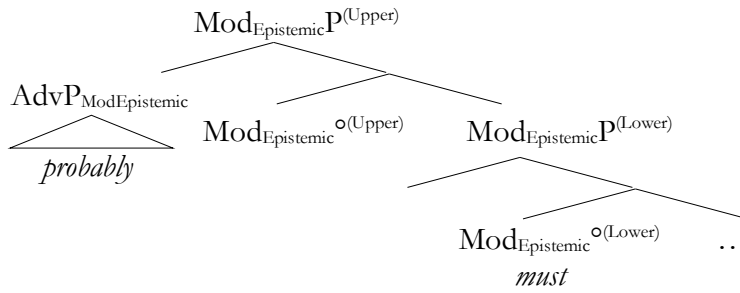
As mentioned in the previous section, based on the raising of the active past participle in Romance, Cinque (1999) argues that AdvPs are the unique specifiers of distinct functional projections. Hence, the Epistemic Modality in English, for instance, would be conveyed by the merging of the epistemic adverb (*probably*, *apparently*) in the Spec of the projection of this category and/or by the merging of the epistemic modal *must*, if present, in the corresponding head to the right. Thus, in the presence of both the epistemic adverb (*probably*) and the epistemic modal (*must*) in the numeration, before possible movements of *must*, Mod<sub>Epistemic</sub>P would be represented as follows:



**Fig. 3: Mod<sub>Epistemic</sub>P in English: a double-filled projection**

Given the placement of the V with respect to adjuncts in head-final languages, Cinque (2013a; see also Cinque 2002: 9, fn. 6) modified this picture. He suggested splitting each IP-related

functional projection from his hierarchy into two other projections. Hence, the higher of these two would host the adverb in its specifier. This upper projection would actually be a sort of “‘small extended projection’ of the functional head” (Cinque, 2002: 9, fn. 6). The “lower shell” would have a modal, restructuring, auxiliary verb (or a particle, bound morpheme, free morpheme, etc.—see Cinque (1999), chapter 3) merged as its head. This means that, in the case of  $\text{Mod}_{\text{Epistemic}}\text{P}$  in English, *probably*—if present—would merge in the Spec of the upper  $\text{Mod}_{\text{Epistemic}}\text{P}$ . If present, the modal *must* would merge as the head of the lowest EpistemicP-shell. This is shown in Figure 4.<sup>19</sup>



**Fig. 4:  $\text{Mod}_{\text{Epistemic}}\text{P}$  in English (II)**

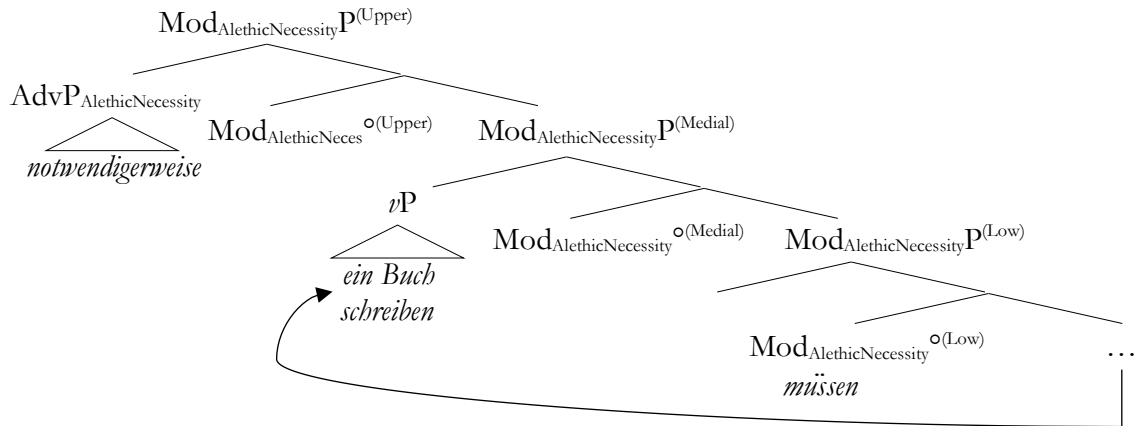
In a recent paper, Cinque (2017) made slight modifications to the developments detailed in Fig. 4, this time by assuming a silent projection in between the two paired functional projections (of Fig. 4). This silent projection would host moved constituents (as explained in the sequence). The need for a set of three functional projections for each category of the functional hierarchy is raised based on the German sentence in (15) where the chunk *ein Buch schreiben* (lit. ‘a book to-write’) is placed between the alethic adverb *notwendigerweise* ‘necessarily’ and the modal *müssen* ‘must’.

- (15) Er wird *notwendigerweise* [ein Buch schreiben] *müssen* (um die Position zu erhalten)  
 He will necessarily a book write<sub>infinitive</sub> must (for the job to get)  
 ‘He will necessarily have to write a book (to get the job)’

Thus, based on data like (15), it is reasonable to think that each functional category as proposed by Cinque (1999)—which, at that time, would be represented as a single functional projection—would actually consist of a set of (*at most*) three functional projections. The projection

<sup>19</sup> The abandonment of the structure in Fig. 3 in favour of that suggested in Fig. 4 would raise the important question on whether some sort of “doubly Comp filter” would apply to functional structure, thus being extended to the categories of the Middlefield, as well. I personally believe that the answer to this question (by one of the reviewers) is positive: if Kayne (2016) is right in arguing that heads are silent (given the fact they are actually only formal features), one might expect that their (alleged) content is actually merged in the corresponding specifier position (see Kayne 2016: 25, fn. 71).

placed between the upper and the lower projections of Fig. 4 would host, in its Spec, a chunk raised in the course of the derivational history. This is suggested in the representation given in Fig. 5.



**Fig. 5:  $\text{Mod}_{\text{AlethicNecessity}}$  and  $v\text{P}$ -raising in German<sup>20</sup>**

The data on the raising of the finite V presented below not only presents an argument in favour of the conjecture raised by Cinque (2017) regarding the need for three functional projections—say, a functional “triad”—for each single category of his hierarchy (Cinque, 1999)—

<sup>20</sup> One of the anonymous reviewers raised a very important point: the real need to postulate an intermediate projection to receive the  $v\text{P}$  material—say, *ein Buch schreiben* ‘a book to-write’—between the position occupied by the adverb *notwendigerweise* ‘necessarily’ and its corresponding functional head, *müssen* ‘must’. According to them, “there is no need to postulate an intermediate position (...) [.] and no need for stipulating a multi-dimensional space for every functional category (in the spirit of ‘one feature, one head’ and in the spirit of a recent publication by Rizzi (2017), on the format and the locus of parameters).”

Although, in the discussion of the movements to Phi and Q, Rizzi (2015[2017]) upholds the idea that a head Phi can attract both the inflected verb (under a traditional V-to-I analysis) and the DP-argument to its Spec—as is illustrated by the (traditional) derivation of SVO in French, whereby the Subject would come to occupy position of the specifier of the inflected V (endowed with a Phi-like feature), presumably in  $\text{AgrS}^0$  in the analyses of the early 90s—, he raises the possibility that the subject and the verb could actually occupy distinct projections (as suggested by (i), see below): “[a] conceivable alternative is that each individual functional head is endowed at most with a single pair of features triggering movement, so that an individual head is a trigger for either head movement or phrasal movement, but not for both simultaneously. If so, the relevant cases would have to be reanalyzed as involving two distinct heads, the lower one triggering head movement and the higher one triggering phrasal movement.” (2015[2017]:11). As Rizzi himself points out, French allows the interpolation of adjuncts between the Subject and the V in T which would suggest that “distinguishing two separate heads as triggers of the two types of movement is at least an option” (Rizzi 2015[2017]: 11).

(i) *Jean, à mon avis, trouvera la solution* (French – Rizzi 2015[2017]: 11)  
‘Jean, in my opinion, will find the solution’

One could say that the French example in (i) goes in the same direction of the German one in (15), discussed in the text, when it comes to the need of assuming that the categories of the Inflectional domain may be realised by more than one functional projection. In the same vein of the derivation of (15), discussed in the text—see the comments on the derivation suggested by Fig. 5—, (i) would involve the raising of the V to T(P), further raising of the adjunct *à mon avis* ‘in my opinion’ to the specifier of the intermediate projection of the triad and the raising of the subject to the specifier of the higher projection of the referring triad.

What remains to be understood—as correctly pointed out by the same reviewer—is the nature of the trigger of the movement to this intermediate position, considering that it is apparently a non-criterial position. I leave this issue open for further inquiry.

On a different (yet still cartographic) view to the derivation of cases like (15), see Samo (2018).

see (1) of Section 2—, but may also shed light on important discussions within Comparative Syntax. Thus, to approach the facts from a microparametric perspective, I am taking the studies by Tescari Neto (2013) and Tescari Neto and Forero (2020) on V raising in Brazilian Portuguese (BP), and the works of Forero (2019) and Tescari Neto and Forero (2020) on V raising in Colombian Spanish (CS). The results of this general discussion on two close-related languages will be the starting point based on which we shall establish a comparison with Canadian English (CEn)—whose data is discussed in a study by Sant’anna (2018)—on the different heights of movements performed by the [V + O(bject)] chunk among the adverbs from Cinque’s hierarchy in a (more) macroparametric perspective.

I shall now show that each IP-related category from the hierarchy in (1) would actually consist of (at most) three functional projections, as hinted by Cinque (2017). The lowest projection of the triad will be the locus for the merger of the functional head. The Spec of the medial projection will host moved materials (following Cinque’s 2017 suggestion on the derivation of the German data presented in (15) and discussed here in the excerpt related to Figure 5). The Spec of the higher projection will be the place for the *merger* of Cinque’s adjuncts, as in Cinque (2017). Thus, the specifier of the lower projection is free to receive the VP. Since we are only dealing with phrasal movements (Mahajan 1990; Koopman and Szabolcsi 2000; Chomsky 2001; Cinque 2005, 2013c, 2017 and later works; Tescari Neto 2013),<sup>21</sup> the raising of the VP to the specifier of the lower projection of the triad will stand in for the familiar V-to-I (head) movement of the 1980s and the 1990s.<sup>22</sup>

Many studies on V raising in BP have convincingly shown that the finite V must leave the thematic field and raise to the inflectional domain (see Galves 1993, 1994 [2001]; Silva 1996; Cyrino 1999, 2013; Modesto 2000; Brito 2001; Matos and Cyrino 2001; Silva 2001; Cyrino and Matos 2002; Costa and Galves 2002; Ambar, Gonzaga and Negrão 2004; Pires 2005; Costa and Silva 2006; Ambar, Negrão, Veloso and Graça 2009; Tavares da Silva 2009; Tescari Neto 2013, 2016; 2020;

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<sup>21</sup> We are endorsing the views of Cinque (2006, 2013a), according to whom, considering the left-right asymmetry of natural languages, even the V arguments enter the derivation above the VP in dedicated specifiers, according to the thematic hierarchy (Schweikert 2005; Cinque 2006, 2013a) shown in (i) below, which must be integrated into the hierarchy in (1).

(i) DP<sub>time</sub> > DP<sub>location</sub> > ... > DP<sub>instrument</sub> > ... > DP<sub>manner</sub> > ... > DP<sub>agent</sub> > DP<sub>goal</sub> > DP<sub>theme</sub> > V<sup>o</sup>  
(Cinque, 2013a: 58)

<sup>22</sup> The very fact that “simple” verb movement (i.e., the one responsible for the derivation of the V-Adv-O configuration) is always phrasal movement raises the important question brought to me by one of the anonymous reviewers: “what happens with movement to the C-domain (inversion, V2, etc.)?”—traditionally seen as featuring V-to-C (head-) movement. Of course, future work has to develop this issue better, revisiting V-to-C (in wh-structures, Aux-to-Comp, and the like) in terms of phrasal movement, instead of head-movement. The assumption of Cinque’s (2017) triad would be of help in the present context, the only question being whether V-to-C would be paraphrased as raising of the V to the specifier of the lower or of the medial projection.

Tescari Neto and Forero 2020). That is also true of CS: the finite V obligatorily raises to the inflectional domain (Forero 2019; Tescari Neto and Forero 2020). If one adopts Cinque’s 2017 system on the need for at most three projections for each category of his hierarchy given in (1) of Section 2, they would implement Cinque’s (2017) idea by assuming that while the German case illustrated in (15) and discussed in the related text (also see Fig. 5) gives support to the assumption of a different landing site for (what I have identified as) the *v*P-chunk—*ein Buch schreiben* lit. ‘a book write’—, the BP and the CS facts would support the idea that the lowest specifier hosts the sole VP (on its movement upwards). The German example will shed light on the analysis of the [V O] raising, whereby the movement of the V with object pied-piping (as well as the raising of chunks in general) may target the specifier of the medial projection of that triad. So we shall start with the derivation of the V(erb)-O(bject)-A(dverb) order in BP and CS.

These two languages have V raising (with and/or without object pied-piping). According to Tescari Neto and Forero (2020), the V-O-A order (see an example of this in (16) below) obtains through the raising of the V pied-piping the object to the left of the adjunct—*dentro em breve/ahorita* ‘soon’, in the specific case of (16).

- (16) a. João come o bolo dentro em breve  
           João eats the cake soon  
           ‘João eats the cake soon’  
       b. Juan come la torta ahorita  
           Juan eats the cake soon

According to the data reported in Table 2, below, the V pied-piping the object (i.e. the [V O] chunk) can raise over all low and medial adverbs in the same fashion in BP and CS. [V O] cannot raise past high adverbs with transitive verbs, nonetheless.

Thus, regarding the derivation of the V-O-A order, one could turn to the medial projection of the triad, in the spirit of the analysis of the German data by Cinque (2017) in (15)—see Fig. 5 above and the related text. So, as in German, the medial projection of the triad—indicated in our representations by the superscript <sup>“(Medial)”</sup>—is the landing site for larger portions of structure. In the specific case of BP and CS, the medial projection would host the [VO] chunk. Sentences involving the V-O-A order would, thus, be derived by the raising of the V over the object—which, in Cinque (2006, 2013a) is merged above the VP (see, in Fig. 6, the derivational step indicated by

(1); also see the comments made in footnote 19).<sup>23</sup> Next, the VP pied-pipes the object to the left of any adverb (if present). In the case of (16), the [V O] chunk raises over the prospective adverb *dentro em breve/aborita* ‘soon’ (which is placed in the specifier of the upper projection of the triad—in this case, Asp<sub>Prospective</sub>). So, the [VO] chunk raises to the Spec of the retrospective aspect projection (which immediately dominates the projection where the prospective aspect adverb is merged). It targets the medial projection—as it is a movement of a chunk (see the step (2) indicated in Fig. 6).<sup>24</sup>

Lexical item (BP/CS) and Category/class	A-V-O		V-A-O		V-O-A		V-O, A	
	BP	CE	BP	CE	BP	CE	BP	CE
<i>francamente/ sinceramente</i> ‘frankly’ Mood <sub>SpeechAct</sub> > <i>felizmente/ afortunadamente</i> (‘fortunately’) Mood <sub>Evaluative</sub> > <i>supostamente/ evidentemente</i> (‘allegedly/ evidently’) Mood <sub>Evidential</sub> > <i>provavelmente/ provavelmente</i> (‘probably’) Mod <sub>Epistemic</sub>	✓	✓	✓	✓/?	*	*	✓	✓
<i>uma vez/ antes</i> T <sub>Past</sub> > <i>então/ depois</i> T <sub>Future</sub>	✓	*	✓	*/?	✓	✓	✓	✓
<i>talvez/ tal vez</i> Mood <sub>Irrrealis</sub> > <i>necessariamente/ necessariamente</i> Mod <sub>Necessity</sub> > <i>possivelmente/ posiblemente</i> Mod <sub>possibility</sub>	✓	✓	✓	✓	*	*	✓	✓
<i>geralmente/ generalmente</i> Asp <sub>Habitual</sub>	✓	✓	✓	✓	*	*	✓	✓
<i>novamente/ nuevamente</i> Asp <sub>Repetitive(I)</sub> > <i>frequentemente/ frecuentemente</i> Asp <sub>Frequentative(I)</sub> > <i>de gosto/ intencionalmente</i> Mod <sub>Volition</sub> > <i>rapidamente/ rápidamente</i> Asp <sub>Celerative(I)</sub>	✓	✓	✓	✓	✓	✓		
<i>já/ ya</i> T <sub>Anterior</sub> > <i>já não/ ya no</i> Asp <sub>Terminative</sub>	✓	✓	*	*	✓	*		
<i>ainda/ aún</i> Asp <sub>Continuative</sub>	✓	✓	✓/?	*	✓	*		
<i>sempre/ siempre</i> Asp <sub>Continuous</sub> > <i>ultimamente / ultimamente</i> Asp <sub>Retrospective</sub>	✓	✓	✓	*/?	✓	✓		
<i>(dentro) em breve/ aborita</i> Asp <sub>Proximative</sub> > <i>brevemente/ brevemente</i> Asp <sub>Durative</sub>	✓	✓	✓	✓	✓	✓		
<i>quase/ casi</i> Asp <sub>Prospective</sub>	✓	✓	*	*	*	*		
<i>de repente/ de repente</i> Asp <sub>Inceptive</sub> > <i>obrigatoriamente/ obligatoriamente</i> Mod <sub>Obligation</sub> > <i>em vão/ en vano</i> Asp <sub>Frustrative</sub>	✓	*	✓	✓	✓	✓		
<i>completamente/ completamente</i> Asp <sub>SgCompletive(I)</sub> > <i>tudo/ todo</i> Asp <sub>PlCompletive</sub> > <i>bem/ bien</i> Voice > <i>cedo/ temprano</i> Asp <sub>Celerative(II)</sub> > <i>do nada/ de la nada</i> > Asp <sub>Inceptive(II)</sub> > <i>de novo/ de nuevo</i> Asp <sub>Repetitive(II)</sub> > <i>com frequência/ con frecuencia</i> Asp <sub>Frequentative(II)</sub>	*	*	✓	✓	✓	✓		

Key: ✓: grammatical, \*: ungrammatical; ? : marginally possible; ?? : very marginal

Table 2: V raising in BP and CS (adapted from Tescari Neto and Forero 2020)<sup>25</sup>

<sup>23</sup> For simplicity, as this first step involves no pied-piping, one should argue that the VP raises to the Specifier of the lowest head of the Asp<sub>FrequentativeII</sub> triad, the lowest category of the hierarchy proposed by Cinque (1999) (see (1)).

<sup>24</sup> Cartographers are aware of the fact that optional movements should be avoided under (strict) minimalist lens: “Notice that this approach tends to eliminate the possibility of optionality in derivation. Choice points will be allowable only if the resulting derivations are all minimal in cost, as in the case of French infinitival constructions discussed earlier [...] This may well be too strong a conclusion, raising a problem for the entire approach.” (Chomsky 1992: 68) Thus, one of the reviewers is right to say that “the issue of optionality of movement should be addressed.” For the time being, I have nothing to say on this (important) matter, although I do acknowledge that the issue warrants further investigation. It must be pointed out, nonetheless, that for a theory interested in micro- and macro-variation, the extension of (optional) movements is a relevant topic, as it allows one to (at least) identify parametric variations.

<sup>25</sup> The following examples, from Tescari Neto and Forero (2020: 500) illustrate the orders shown in Table 2, for the for the epistemic adverb *provavelmente/ probablemente* ‘probably’. The (a,b,c,d) examples are from BP; the (a’,b’,c’,d’) are their corresponding versions in CS:

According to Table 2, in both languages the limit for [V O] raising across an adverb is the highest medial adverb, namely the repetitive (I) adverb *novamente/nuevamente* ‘again’. This amounts to saying that, from the medial projection of the Asp<sub>Habitual</sub>P triad upwards, no V raising with object pied-piping is possible (see the step indicated by (3) in Fig. 6) with transitive verbs.

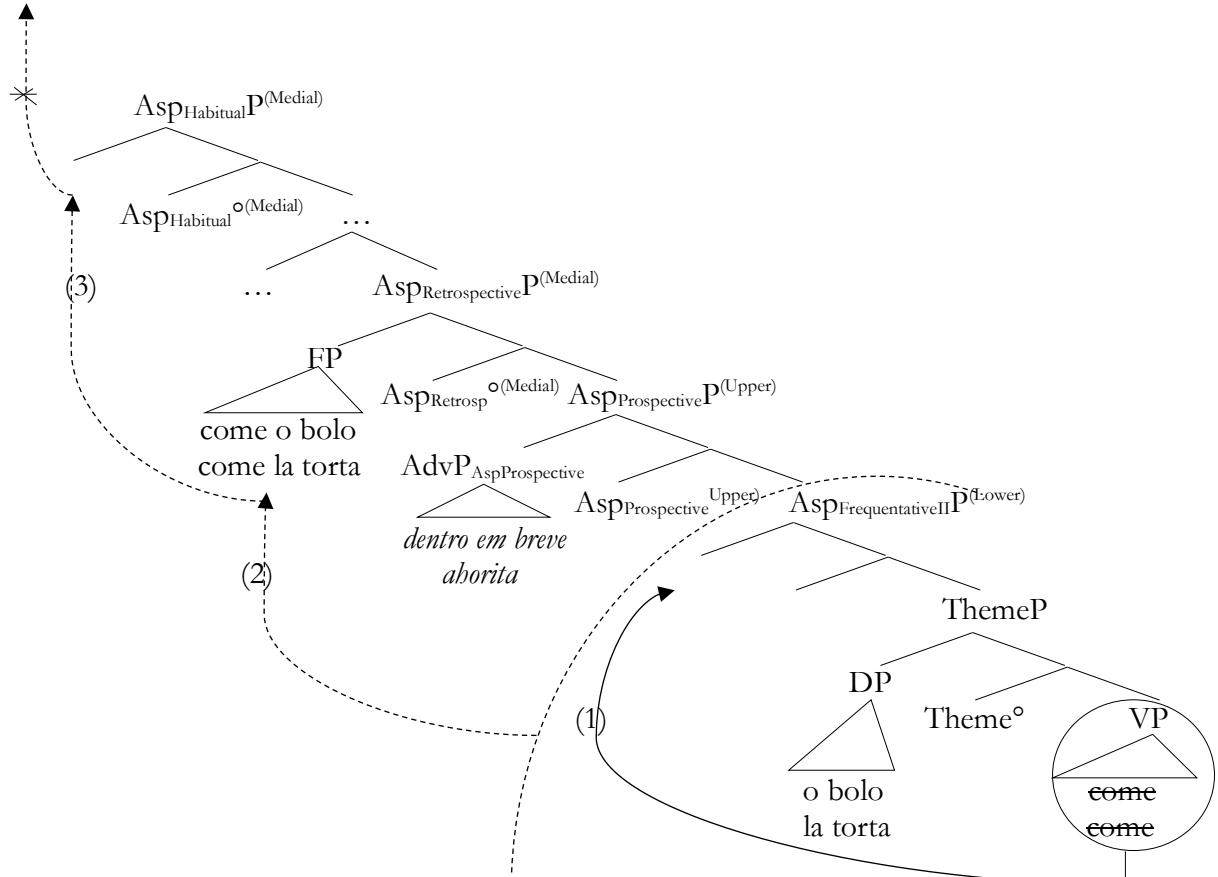


Fig. 6: On the derivation of (16): first steps

- |     |     |                               |                      |                      |                      |          |
|-----|-----|-------------------------------|----------------------|----------------------|----------------------|----------|
| (i) | a.  | <i>João</i>                   | <i>provavelmente</i> | <i>comen</i>         | <i>o bolo</i>        | (A-V-O)  |
|     |     | John                          | probably             | ate                  | the cake             |          |
|     |     | 'John probably ate the cake'  |                      |                      |                      |          |
|     | a'. | <i>Juan</i>                   | <i>probablemente</i> | <i>comió</i>         | <i>la torta</i>      |          |
|     |     | John                          | probably             | ate                  | the cake             |          |
|     | b.  | <i>João</i>                   | <i>comen</i>         | <i>provavelmente</i> | <i>o bolo</i>        | (V-A-O)  |
|     |     | John                          | ate                  | probably             | the cake             |          |
|     |     | 'John probably ate the cake'  |                      |                      |                      |          |
|     | b'. | <i>Juan</i>                   | <i>comió</i>         | <i>probablemente</i> | <i>la torta</i>      |          |
|     |     | John                          | ate                  | probably             | the cake             |          |
|     | c.  | <i>*João</i>                  | <i>comen</i>         | <i>o bolo</i>        | <i>provavelmente</i> | (V-O-A)  |
|     |     | John                          | ate                  | the cake             | probably             |          |
|     |     | 'John probably ate the cake'  |                      |                      |                      |          |
|     | c'. | <i>*Juan</i>                  | <i>comió</i>         | <i>la torta</i>      | <i>probablemente</i> |          |
|     |     | John                          | ate                  | the cake             | probably             |          |
|     | d.  | <i>João</i>                   | <i>comen</i>         | <i>o bolo,</i>       | <i>provavelmente</i> | (V-O, A) |
|     |     | João                          | ate                  | the cake, probably   |                      |          |
|     |     | 'João ate the cake, probably' |                      |                      |                      |          |
|     | d'. | <i>Juan</i>                   | <i>comió</i>         | <i>la torta,</i>     | <i>probablemente</i> |          |
|     |     | <i>John</i>                   | <i>ate</i>           | <i>the cake,</i>     | <i>probably</i>      |          |

Sentences having no object pied-piping by the V—like the example of (17), below—have a different derivation, nevertheless, as explained below:

- (17) a. *Brazilian Portuguese* (V-A-O order)  
*Maria come frequentemente o bolo* (V-A-O)  
 Maria eats often the cake  
 ‘Maria often eats the cake’
- b. *Colombian Spanish* (V-A-O order) (Forero 2019:33)  
*María come frecuentemente la torta*  
 Maria eats often the cake  
 ‘Maria often eats the cake’

One could take Cinque’s 2017 conjecture based on the realisation of a set of three functional projections for each category of his 1999 hierarchy—and, I will say, *a maximum of three functional projections for each category*—to account for word order variation within one language and across languages. Since, all IP-related functional categories must be present in the derivation of any sentence (Cinque 2009, chapter 6), *I take the realisation of at least one projection of each triad to meet that condition*. The raising of VP to the specifier of the lowest head of a triad will assure the valuation of the feature of the corresponding head. Thus, in a theory relying only on phrasal movements and assuming the validity of Cinque’s 2017 conjecture on the need of a triad for the realisation of the content of each functional head of his 1999 hierarchy—and this is what I am assuming here—,<sup>26</sup> the lower projection takes over the role of (putative) head movement. In the absence of object pied-piping, the medial projection is not even projected. When the V pied-pipes the object, the lowest projection does not need to be projected. Fig. 7 indicates the heights where the main V must go in both languages. Only the lower projections—those hosting the VP—and the upper projections—those in whose specifier the adverbs are merged—are represented, as no raising of chunks is involved in these cases.<sup>27</sup>

<sup>26</sup> One of the reviewers asked me whether simple V-raising is being analysed as phrasal-movement here. My answer is positive: in this section, my attempt is to turn to Cinque’s (2017) triad of projections for each one of the categories of his hierarchy (seen in (1)) and do away completely with head-movement, at least in the case of V-raising. Thus, (“simplest”) head-movement is revisited as an instance of VP being raised to the specifier of the lowest head of each category’s triad.

<sup>27</sup> It is important to stress, once again, that the contention raised by Cinque (1999, Ch. 6) that all functional projections should always project is reinterpreted here—based on the *Full Interpretation Principle*—in the following way: it is important that each category of his (1999) Universal Hierarchy, given in (1), be present in the syntactic derivation, but they do not need to project the three projections of Cinque’s (2017) triad. Cinque’s (1999) contention mentioned above is met as soon as at least one of the three projections enters the derivation. In the absence of material in the lexicon to



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be externally merged in the corresponding category semantically matching its content, an internal merge will warrant the valuation of the corresponding features. In this case, two possibilities arise, at least in the case of V raising: either the VP raises, alone, to the spec of the lowest projection or it pied-pipes sentence material (e.g. the object) to the specifier of the medial projection.

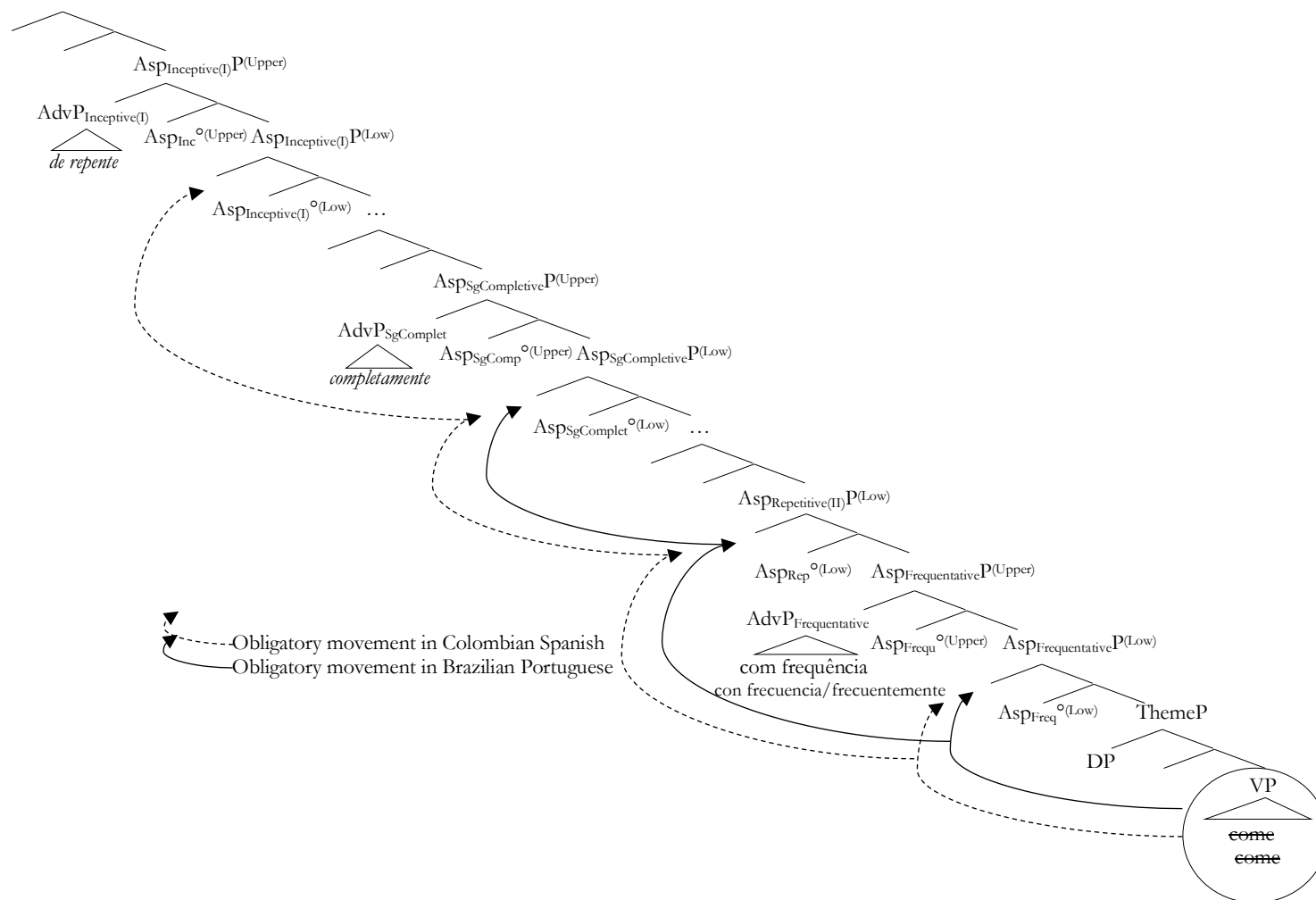


Fig. 7: On the obligatory raising of the main V in BP and CS

As far as the obligatory raising of the V across the adverbs of Cinque’s hierarchy is concerned,  $\text{Asp}_{\text{SgComplete}}\text{P}$  and  $\text{Asp}_{\text{Inceptive(I)}}\text{P}$  are the “cutting points” in BP and CS, respectively, for the obligatory raising of the VP. So, the V must raise over *completamente* ‘completely’ ( $\text{Asp}_{\text{SgComplete}}$ )—and all adverbs c-commanded by it (given locality conditions (Travis 1984; Rizzi 1990, 2001, 2004))—in BP but not any longer. In CS, it has to raise above *de repente* ‘suddenly’ ( $\text{Asp}_{\text{Inceptive(I)}}$ )—and the adverbs it c-commands for the same reasons. These “cutting points” are represented in Fig. 7.<sup>28</sup>

If we take optional movements into account,<sup>29</sup> we did detect some differences regarding the maximum levels in the hierarchy over which the VP can no longer raise. While in CS the V can raise all the way up within the inflectional domain—say, it can even raise past the  $\text{Mood}_{\text{SpeechAct}}$  adverb (Forero 2019; Tescari Neto and Forero 2020), the highest adverb of the hierarchy—, it cannot raise over the  $\text{T}_{\text{Anterior}}$  adverb in BP (Tescari Neto 2013).<sup>30</sup>

<sup>28</sup> I here illustrate this based on data regarding Brazilian Portuguese:

- |     |    |   |                         |   |   |
|-----|----|---|-------------------------|---|---|
| (i) | a. | <i>O João</i>   | <i>*(completamente)</i> | <i>acabou (completamente)</i>                                   | <i>seu trabalho.</i> ( $\text{Asp}_{\text{SingComplete}}$ ) |
|     |    | The John  | completely              | finished (completely)   | his work  |
|     |    | ‘John completely finished his work’ (Galves 2001: 109)  |                         |   |   |
|     | b. | <i>O João</i>   | <i>(*tudo)</i>          | <i>fez (tudo)</i>   | <i>com paciência.</i> ( $\text{Asp}_{\text{PPIComplete}}$ ) |
|     |    | The John  | everything              | did everything  | patiently   |
|     |    | ‘João did everything patiently’ (Tescari Neto 2015: 32) |                         |   |   |
|     | c. | <i>O João</i>   | <i>(*fluentemente)</i>  | <i>fala (fluentemente)</i>                                      | <i>francês.</i> (Voice)                                     |
|     |    | The John  | fluently                | speaks (fluently)   | French  |
|     |    | ‘John speaks French fluently’ (Tescari Neto 2015: 32)   |                         |   |   |
|     | d. | <i>O João</i>   | <i>(*cedo)</i>          | <i>acordou (cedo).</i> ( $\text{Asp}_{\text{Celerative(II)}}$ ) |   |
|     |    | John  | (early)                 | wake-up (early)   |   |
|     |    | ‘John wake up early’ (Tescari Neto 2015: 32)            |                         |   |   |

<sup>29</sup> On the issue of optionality in VP-movement, see the text in fn. 24. Regarding the triggers for optional VP-movement, I stand by the assumption made in Tescari Neto (2013, p. 57ff.)—which is actually what Cinque (2013a) proposes—that “the functional categories found in the extended projection of the N and the V need to inherit the [+V/(N)] feature of the lexical head to ‘fully qualify’ as part of the extended projection. Such a feature is transmitted from the ‘engine’ of movement (i.e. the lexical nucleus (V or N)).” In other words, the driving force of movements—when it comes to optional movements—is the need of each category of a given f-seq to be fully qualified, and thus confirmed, as part of a given extended projection. In the case under consideration, that would (partially) explain the optionality of VP-raising. What remains to be understood is the variation found among different languages concerning the minimum/maximum heights of these movements, an issue which is also a question for theories relying on head-movement. At present, I have no contribution to add to this debate.

<sup>30</sup> Though (ia,b) have similar judgments in BP and CS, the derivation of these sentences is different in each language.

- |     |    |                                 |           |              |                       |
|-----|----|---------------------------------|-----------|--------------|-----------------------|
| (i) | a. | <i>João</i>                     | <i>já</i> | <i>comen</i> | <i>o bolo</i>         |
|     |    | J.                              | already   | ate          | the cake              |
|     |    | ‘John has already ate the cake’ |           |              |                       |
|     | b. | <i>Juan</i>                     | <i>ya</i> | <i>comió</i> | <i>la torta</i> (= a) |

That is because V raising past *já/ya* ‘already’ is only permitted in CS. The very fact that the order *já/ya-V* gives rise to grammatical results in both languages is due to the further raising of the scalar adverb to the left periphery—more precisely to [Spec,FocP], in Garzonio and Poletto’s (2014: 26-27) spirit—only in CS (Tescari Neto and Forero 2020). Of course, extending Garzonio and Poletto’s (2014) analysis to (ib), in CS, raises the important question regarding the

Now, let us add some English data to the general discussion. As we know from the literature, the *finite* V does not raise to inflection in English (Pollock 1989). Thus, given Cinque's 2017 system, the lowest projection of the triad would never be active with finite Vs.<sup>31,32</sup> Now turning to Canadian English (CEn), on the basis of data combining an adverb from Cinque's hierarchy with a transitive V in structures like (18) below, Sant'anna (2018) has convincingly shown that the main V, in the simple present and in the simple past, does not leave the thematic area in this language (but see the data and the discussion at footnote 31). Thus, *again*, the repetitive<sub>(II)</sub> adverb, one of the lowest in Cinque's hierarchy, cannot be found to the right of the main verb (18b). The V can only raise in CEn if it pied-pipes the object across the adverb (18a).

- (18) a. John did his homework *again* (Sant'anna 2018)  
 b. \*John did *again* his homework  
 c. John *again* did his homework

Thus, on the basis of CEn, Sant'anna (2018) not only confirms that there is at least a type of V raising in English—when the object is pied-piped over the adverb (see (18a))—but also gives empirical support for Cinque's 2017 analysis on the need for three projections for the realisation of the functional categories of the universal hierarchy. Thus, if one takes (19),

- (19) Mary criticised John very often (Haegeman 1999: 463),

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surface position of the Subject, as one of the reviewers has pointed out to me. In this cases, the only alternative is to say that the Subject—*Juan*, in (ib)—is occupying a topic-like position in the left-periphery.

<sup>31</sup> Judging from Sant'anna (2018), Canadian English could be an exception since the finite V seems to (marginally) be able to raise a little, say, to a position above the lowest frequentative aspect (II) adverb (*often*):

- (i) a. ?John does often his homework  
 b. John often does his homework

In this case, one should assume that even finite Vs—at least in Sant'anna's CEn—would (marginally) raise at least a little to the inflectional domain. Thus, if this were the case in CEn, (ib) would be derived by the raising of the VP to the specifier of Asp<sub>Repetitive(II)</sub><sup>(Lower)</sup>, as represented in (i'a), below. From that position onwards, only movements of chunks would be allowed—necessarily to the specifier of the medial projection. The lower projection would no longer even be projected.

- (i') a. [SubjP [NP John] [Asp<sub>Repetitive(II)</sub><sup>(Lower)</sup>P [VP *does*] [Asp<sub>Frequentative(II)</sub><sup>(Upper)</sup>P [AdvP *often*] [Asp<sub>Frequentative(II)</sub><sup>(Lower)</sup>P [~~VP *does*~~] [AgentP [~~NP John~~] [ThemeP [DP his homework] [~~VP *does*~~]]]]]]]

<sup>32</sup> There is some V raising in English, especially if the object is pied-piped (ib)), at least with the participle. See Cinque (2021: 60) and references as mentioned there. The examples below are from his work:

- (i) a. She (has) completely understood the problem.  
 b. She (has) understood the problem completely.

that involves the lowest adverb in the hierarchy, the best way to derive it is by raising the V pied-piping the object across the low adverb (*very*) *often*—a derivation which reminds us of Haegman’s analysis (1999). In this case, the raising of the [V O] chunk targets the medial projection, as it involves larger portions of structure (and not only the V), as can be seen in Figure 8.

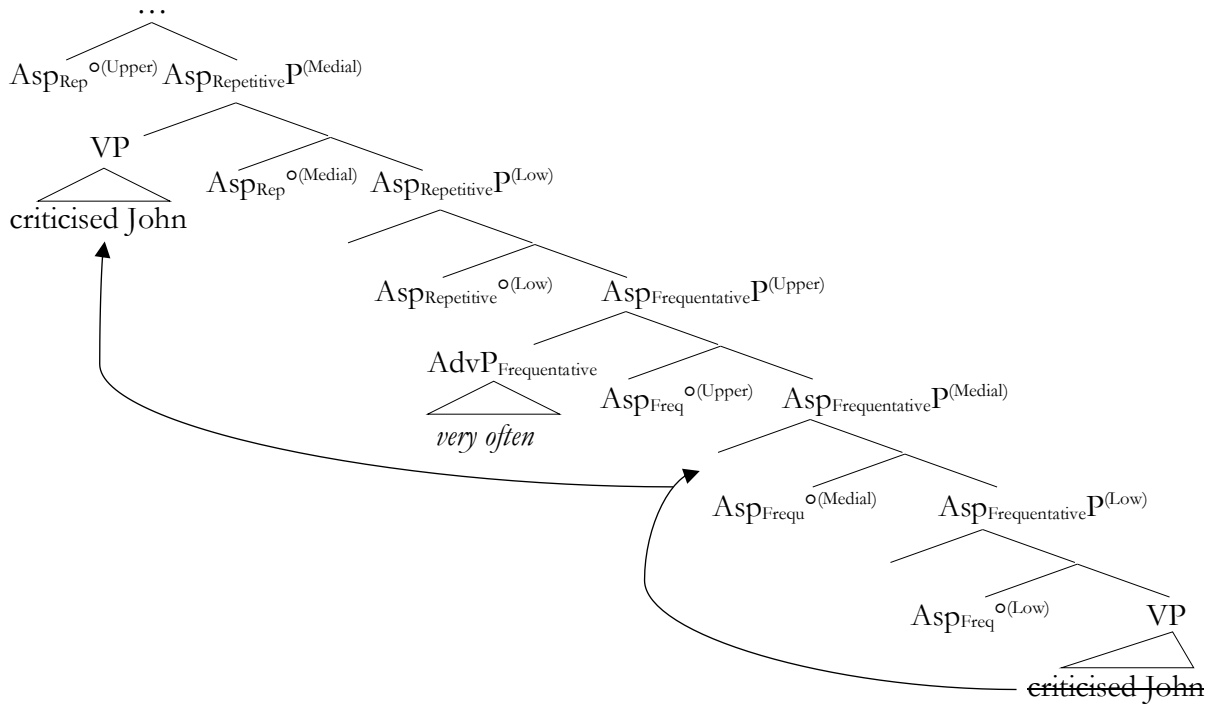


Fig. 8: Derivation of (19): first steps<sup>33</sup>

All low and some medial adverbs can be found in the sentence-final position in CEn, thus allowing the raising of the V pied-piping the object to their left—regardless of the tense of the V entering this construction (Sant’anna 2018). The medial projection of the triad is, thus, “permeable” in CEn. The [V O] chunk can raise past  $\text{Asp}_{\text{Celerative}}\text{P}$  (whose associated adverb is *quickly*), and all projections c-commanded by it, but not any higher with verbs in the preterite.  $\text{Asp}_{\text{Terminative}}\text{P}$  is the maximum height where the [V O] chunk (with the V in the present) can go. The results are shown in the Table that follows.

<sup>33</sup> What is indicated as “VP” in Fig. 8 is actually in line with what has been assumed before (see Fig. 6 and 7): [FP [VP criticised] [ThemeP [NP John] ~~[VP criticised]~~]]. I am omitting irrelevant details here. For future research, I am also leaving open to discussion the important question brought to me by one of the anonymous reviewers on the possible need to implement a general discussion on V-movement pied-piping the object in terms of the criterial system devised by Rizzi (2004).

AdvP class	Past	Present
Volition	*	*
Celerative(I)	✓	*
Terminative	✓	✓
Continuative	✓	✓
Proximative	✓	✓
Durative	✓	✓
Prospective	??	??
Inceptive(I)	??	*
Obligation	✓	✓
Frustrative	✓	✓
SgCompleitive	✓	✓
Voice	✓	✓
Celerative(II)	✓	✓
Inceptive(II)	✓	✓
Repetitive(II)	✓	✓
Frequentative(II)	✓	✓

**Table 3: The V-Object-AdvP order in Canadian English with transitive verbs in the past and in the present (Adapted from Sant’anna 2018, p. 5-6)**

In this, two important conclusions can be drawn from Sant’anna’s (2018) study. First, the “permeability” of the Middlefield to [V O] raising across the adverbs is sensitive to the universal hierarchy in CEn. This fact goes in the direction of what has been argued for BP and CS (in the beginning of this section)—and for other Romance languages in section 3.2 when we have discussed the raising of the active past participle—in terms of Cartographic methodologies. The functional sequence can be seen as a good methodological tool to show intra-linguistic variation, an important research topic in the Cartographic agenda, whose embryo is the seminal work by Pollock (1989). Secondly, the different heights that distinct V forms may reach within the functional sequence (Pollock 1989; Belletti 1990; Cinque 1999) seems not to be the last empirical observation on verb raising. Different variables must be considered in the investigation. The maximum level the [V O] chunk can reach within the Middlefield may also be sensitive to verb tense (at least in CEn), as the [V O] chunk can raise over the celerative(I) adverb in the past but not in the present.

Apart from being a good methodological tool to detect intra-linguistic variation (as in the case of CEn, for instance, whereby there is no raising of the V alone but only V raising with object pied-piping), the cartographic hierarchies also prove to be very effective instruments for approaching the limits of cross-linguistic variation, as we have seen in our comparison of BP and CS. We can now even shift from a more microparametric approach to a macroparametric one, by bringing together CEn, on one side, and BP and CS on the other.

Thus, if one takes each one of these three languages singly, the intralinguistic variation regarding, for instance, V(P)-raising with and without object pied-piping is an important issue to be taken into account. While there is no VP-raising in CEn—unless the object is pied-piped (but

see the comments and data in footnote 31)—, there is V(P)-raising in BP and in CS, irrespective of whether there is object pied-piping or not. These two languages vary with respect to the mandatory raising of the V(P) (so, in BP, the V(P) must raise less than it does in CS). Some difference is also detected if one takes the optional raising of the V into account. While, in CS the VP can raise over all the adverbs from Cinque’s hierarchy, in BP its movement is limited to  $T_{Anterior}$ , a projection that defines the “cutting point” for optional V raising in BP: from that position on, the V can no longer be raised. If one considers the raising of the [V O] chunk, all three languages do have V raising. Thus, while in BP and CS the [V O] chunk can raise over the highest medial adverb and all the adverbs below it, such movement is more limited in CEn, where the cutting points are  $Asp_{Celerative}P$ , whose associated adverb is *quickly*, the highest adverb over which a V in the preterite can raise, and  $Asp_{Terminative}P$ , the maximum projection above which the V in the present can raise.

Such variation would not be so easily achieved within alternative approaches to the structure of the clause where less structure is the norm. Let us put this in a more concrete way. Consider the reductionist view discussed in Section 2, according to which, as we have seen, FLN is reduced to merge/recursion. How could the micro-variation observed on the raising of the finite verb in BP and CS be envisaged outside an approach turning to a layered, enriched functional structure? The Cartographic Programme provides the tools to peer into this micro-variation, as has been discussed at length in the text related to Table 1 and Figure 2 (Section 3.2) and in the one related to Table 2 (Section 4). Cartographic hierarchies allow one to pinpoint the limits of cross-linguistic variation by means, for instance, of the different heights of movements. We have seen this based on V(P)-raising. When it comes to macro-variation, Cartographic hierarchies still allow one to establish the differences across the distinct grammatical systems giving rise to macroparameters. As argued above, the [V O] chunk can raise over the highest medial adverb and all the adverbs c-commanded by it in BP and in CS, while in CEn the cutting points are  $Asp_{Celerative}P$ , in the preterite, and  $Asp_{Terminative}P$ , in the present. While these micro- and macro-parametric differences come for free in cartographic approaches—given the natural empowerment of Narrow Syntax—, they would hardly be accounted for by the reductionist view.

All in all, maybe the key to the understanding of the general picture, particularly shown in Sections 3.2 and 4, could be the syntactico-semantic nature of the “bordering” heads—namely, the feature of each specific head marking a “cutting point” for a given type of movement (obligatory, optional, forbidden)—in each construction in the different languages, an issue still open for future investigation.

## 5. Conclusion

The paper has revisited some of the theoretical bases of Syntactic Cartography by turning to one of its founding works, in this case the monography penned by Cinque (1999), which has successfully put together some developments in Syntactic Theory—mainly from the 80's and the 90's—with many important contributions within the realm of Linguistic Typology.

As stated in the *Introduction*, two interrelated goals have guided and steered the discussions throughout the four sections of the paper. First and foremost, the paper aimed to discuss some theses of Cinque's 1999 book at the same time as it brought some conceptual arguments in favour of Syntactic Cartography. We have seen, mainly in section 2, that there are conceptual reasons to believe that FLN would have more than just recursion. The general cartographic assumption that FLN has rigidly ordered hierarchies guiding the moment when an element is externally merged or even displaced (Cinque 1999, 2004, 2013b, 2017; Tescari Neto 2019b) would help us getting rid of the overgeneration of illicit word orders involving combinations of elements from the hierarchy (in other words, those combinations which do not follow the hierarchy) that would otherwise have to be discarded by the interfaces. Secondly, the paper reviewed some methodological tools often used by Cartographers, namely, Jackendoff's (1972) criterion to diagnose membership of a given category, and precedence-and-transitivity tests. These methodological devices go well beyond the limits of Cartography. Indeed, they can actually be used by typologists as methodological devices too.

Some data (from BP, CEn and CS) on V raising were presented in section 4. They bring support to Cinque's 2017 conjecture on the need of (at most) three functional projections for each one of his (almost forty) categories in the derivation of a sentence.

Thus, instead of turning to just “doubly filled” projection—having both its Spec and head potentially filled (in the presence of material from the lexicon)—, Cinque's 2017 system dealing with three projections (one dedicated to the merging of the head; another for hosting displaced material from the sentence; and a third to the merging of adverbs) has proved to be a good alternative to account for the V raising facts as discussed in Section 4, especially the movement of the [V O] chunk which can reach different layers of the hierarchy. From the perspective of a theory of UG, what really matters is the acknowledgment of a functional structure that is invariant across languages (Cinque 2006).

Be each functional category realised in just one projection (as in Cinque's 1999 monography), two (as in Cinque 2002) or even three (as in his 2017 work—the version assumed here for which we have brought independent pieces of evidence on the basis of the V raising facts in the three languages discussed in Section 4), one should agree that those three theoretical variants



discussed in section 4 are mere descriptive and explanatory alternatives of one same grammatical fact as already noted by Cinque (1999): the existence of a functional sequence which is an irreducible property of UG.

All else being equal, the Cartographic enterprise, besides offering interesting insights on some of the invariant principles of UG—namely, that all languages would have, in addition to recursion, some sequences of rigidly ordered functional categories—, does also help one to accurately deal not only with macro but also with micro-variation.

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