

Article

A View of the CP/DP-(non)parallelism from the Cartographic Perspective

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Abstract: The aim of this paper is to reconsider some aspects of the so-called clause/noun-phrase (non-)parallelism (Abney 1987 and much subsequent work). The question that arises is to find out what is common and what is different between the clause as a Complementizer Phrase (CP)-structure and the noun as a Determiner Phrase (DP)-structure in terms of structure and derivation. An example of structural parallelism lies in the division of the clause and the noun phrase into three domains: (i) the *Nachfeld* (right periphery), which is the thematic domain; (ii) the *Mittelfeld* (midfield), which is the inflection, agreement, Case and modification domain and (iii) the *Vorfeld* (left periphery), which is the discourse- and operator-related domain. However, we will show following Giusti (2002, 2006), Payne (1993), Bruening (2009), Cinque (2011), Laenzlinger (2011, 2015) among others that the inner structure of the *Vorfeld* and of the *Mittelfeld* of the clause is not strictly parallel to that of the noun phrase. Although derivational parallelism also lies in the possible types of movement occurring in the CP and DP domains (short head/X-movement, simple XP-movement, remnant XP-movement and pied-piping XP-movement), we will see that there is non-parallelism in the application of these sorts of movement within the clause and the noun phrase. In addition, we will test the respective orders among adverbs/adjectives, DP/Prepositional Phrase (PP)-arguments and DP/PP-adjuncts in the *Mittelfeld* of the clause/noun phrase and show that Cinque's (2013) left-right asymmetry holds crosslinguistically for the possible neutral order (without focus effects) in post-verbal/nominal positions with respect to the prenominal/preverbal base order and its impossible reverse order.

Keywords: Generative Grammar; cartography; noun phrase/clause-(non)parallelism; types of movement; left-right asymmetry; head-final vs. head initial languages

1. Introduction

Since the very beginning of Generative Grammar the parallelism between the deverbal nominal construction *the enemy's recent destruction of the city* and the clause *The enemy recently destroyed the city* has been questioned. Lees proposes that such derived nominals are the result of transformational rules that apply in syntax [1]. Chomsky argues against this syntactic approach and assumes that such constructions are derived through lexical rules within the framework of what will be called the Lexicalist Hypothesis [2].

The structural parallelism between the noun phrase (NP) and the clause has emerged more strikingly from Abney's [3] Determiner Phrase (DP)-hypothesis and has been further developed and discussed in much subsequent work (Cinque [4], Giusti [5–7], Payne [8],

Bruening [9], Laenzlinger [10,11], among others; see also Bernstein [12] for an overview).¹ The aim of this paper is to revisit some properties related to the so-called clause/noun phrase parallelism. The question that arises is to find out what is common and what is different between the clause as a Complementizer Phrase (CP)-structure and the noun as a DP-structure in terms of structure and derivation.²

At first sight one case of structural parallelism lies in the division of the clause and the noun phrase into three domains (Grohmann [16], Laenzlinger [10], Wiltschko [17]).

1. a. [DP ... [DP [TP [FPadj1 ... [FPadj2 ... [nP ... [NP ..]]]]]]]]
- b. $\underbrace{[CP \dots [CP]}_{\text{Vorfeld (left periphery)}}$ $\underbrace{[NumP [FPadv1 \dots [FPadv2 \dots [vP \dots [VP ..]]]]]]}_{\text{Mittelfeld (midfield)}}$ $\underbrace{[vP \dots [VP ..]]]]}_{\text{Nachfeld (right periphery)}}$

These three domains (DP/CP, NumP/TP and NP/VP) are constituted of multilayered split-structures. The *Nachfeld* is the thematic domain where the arguments merge and their θ -role is assigned/valued (Laenzlinger [10], Larson [18], and Chomsky [19], among others). The *Mittelfeld* (or midfield) is the inflection, agreement and Case domain (Pollock [20], Belletti [21], Cinque [4,22]). It is also the domain where modifiers externally merge (adjectives and adverbs, see Cinque [22,23]; Laenzlinger [10,11,24]). The *Vorfeld* is the discourse-related, referential and quantificational domain (Laenzlinger [10], Rizzi [25], Rizzi and Bocci [26], Aboh [27]). However, it will be demonstrated that the inner structure of the left periphery and of the midfield of the clause is not strictly parallel to that of the noun phrase (Payne [8], Bruening [9]).

As will be shown in this paper, there is also derivational parallelism in the possible types of movement occurring in the CP and DP structures: short X-movement, simple XP-movement, remnant XP-movement and pied-piping XP-movement. Nevertheless, we will see that there is non-parallelism in the application of these sorts of movement within the clause and the noun phrase. To be more precise, in this article we will study the order among adverbs/adjectives, DP/Prepositional Phrase (PP)-arguments and DP/PP-adjuncts in the *Mittelfeld* and the *Vorfeld* of the clause/noun phrase and test if Cinque's left-right asymmetry [28] (see (2) below) holds for the possible neutral order (without focus effects) in post-verbal/nominal positions (2c) and (2d) with respect to the base order in (2a) and the impossible reverse order in (2b).

2. Left-right asymmetry
- German_{V-final}/Tatar/Japanese
- a. (x) y z V/N (base)
- b. *z y (x) V/N
- German_{V2}/English/Romance
- c. V/N (x) y z
- d. V/N z y (x)

The paper is organized as follows. After the introduction Section 2 deals with the structure of the left periphery for the clause (Section 2.1) and the noun phrase (Section 2.2). We will present

¹ See also work in the framework of Distributed Morphology (Marantz [13], Alexiadou [14]) where the parallelism between clauses and derived nominals is also striking (the category of the root is defined syntactically, i.e., syntax feeds the lexicon, see also Borer's [15] exo-skeletal lexical approach).

² In this context it is important to make a distinction between event-denoting nouns (deverbal/derived nominals) and object-denoting nouns as well as between state-denoting and event-denoting verbs.

arguments in favor of a split-CP/DP structure on the basis of multiple complementizer and determiner occurrences, fronting of arguments and adjuncts for topicalization, focalization and other informational prominence effects. Section 2.1 is concerned with the *Nachfeld* involving a vP shell structure for the clause and its corresponding nP shell for the noun phrase and their left periphery. The arguments merge in the thematic domain according to the Universal Thematic Hierarchy. Immediately above vP/nP, there are discourse-related positions (e.g., a focus position). In Section 3 the midfield of the clause (Section 3.1) and of the noun phrase (Section 3.2) is described and analyzed comparatively in some languages of different families. The relevant constituents whose respective ordering is studied are adjectives/adverbs, DP/PP-adjuncts and DP/PP-arguments. We will show that Cinque's left-right asymmetry holds for several languages according to their V/N-initial and V/N-final configurations. Section 4 contains the conclusion.

2. The Rich Structure of the Left Periphery

2.1. The Clause (CP)

Since Rizzi [25] the CP layer has been assigned a Force-Finiteness articulation. The cartography of the split-CP structure is given in (3) following Rizzi [25,29,30] and Rizzi and Bocci [26].

3. Force > Top* > Int > Top* > Foc > Mod* > Top* > QP_{embed} > Fin > Subj

In French the arguments can move to Topic Phrase (TopP) (recursively in clitic-left dislocation), as illustrated below in (4a, c and d). Movement to Focus Projection (FocP as a single projection) is restricted to adjuncts in French contrary to Italian, as shown in (4b–c).³

4. a. [TopP De ce livre, [SubjP je sais que tu en parleras]]
About this book, I know that you of-it talk-FUT
'About this book, I know you will talk.'
- b. [FocP DEMAIN, [SubjP nous irons à la plage, pas aujourd'hui]]
Tomorrow-FOC we go-FUT to the beach, not today
'TOMORROW we will go to the beach, not today.'
- c. [FocP DEMAIN, [TopP à la plage, nous y irons, pas aujourd'hui]]
Tomorrow-FOC to the beach we there go-FUT, not today
'TOMORROW to the beach we will go, not today.'
- d. [TopP A la plage [FocP DEMAIN, nous y irons, pas aujourd'hui]]
To the beach tomorrow-FOC we there go-FUT, not today
'To the beach TOMORROW we will go, not today.'

As argued by Rizzi [30], fronted adverbs move to Mod(if)P (modifier projection). Crossing another modifier results in a Relativized Minimality effect, as shown in (5) with the adverb *probably* blocking movement of *slowly*.⁴

5. Lentement, ils se sont (*probablement) tous dirigés vers la sortie
Slowly they Pron-REFL are (*probably) all move toward the exit
'Slowly, they (*probably) all move to the exit.'

³ A cleft construction is used for arguments as shown by the contrast between (ia) and (ib).

- i. a. *Ce LIVRE-ci j'ai choisi, pas celui-là.
b. C'est ce LIVRE-ci que j'ai choisi, pas celui-là.
'It is this book that I chose, not that one'

⁴ The celerative adverb *lentement* 'slowly' externally merges in a position lower than the modal projection hosting the adverb *probably*.

The data in (6) indicate that PP-adjuncts target a Top projection rather than a Mod(if) projection provided that there is no Relativized Minimality effect from the intervention of an adverb (Top vs. Mod(if)).

6. a. Dans deux jours, nous irons probablement à la plage.
 In two days we go-FUT probably to the beach
 'In two days we will probably go to the beach'
- b. De ses propres mains, il a récemment réparé des Voitures.
 Of his own hands he has recently repaired DET-INDEF cars
 'With his own hands, he recently repaired (some) cars'

The different occurrences of complementizers (*que/that si/if, de, à*, etc., see Rizzi [25,30]) are further arguments in favor of a rich split-CP structure. It is assumed that they occupy distinct positions in the left periphery (Force, Interrogative (Int), Finite (Fin)). The fact that complementizer doubling exists in some languages (Irish English, Dutch, Picard, Northern Italian dialects, early Romance, spoken Spanish, European Portuguese; see McCloskey [31], Villa-García [32] and Paoli [33] for data and references) gives further support for the split CP. The higher complementizer occurs in Force and the lower one in Fin and a topic or a focus can be sandwiched between them.⁵ Note that, akin to complementizers, determiner doubling and determiner spreading are attested in languages like Swedish, Romanian, Hebrew and Swiss/German dialects for the former and Greek for the latter. These facts will be discussed in the next section. As regards complementizer 'spreading', Villa-Garcia reports the example of spoken Spanish in (7) with multiple topics [32].

7. Me dijeron que si llueve (que) se quedan aquí, y que si nieva (que) también.
 cl. said that if rains that cl. stay here and that if snows that too
 'They told me that they are going to stay here if it rains or snows.'

2.2. The Noun Phrase (DP)

By analogy with Rizzi's split-CP analysis, some authors (Giusti [5–7], Laenzlinger [10,11,24], Aboh [27], Puskás and Ihsane [35], Ihsane [36] among others) propose a split-DP structure. What corresponds to Force is $D_{\text{deixis/specificity}}$ and, similarly, Fin is equated to $D_{\text{definiteness/determination}}$. Laenzlinger [10,11] puts forth the structure in (8) which also contains dedicated positions for fronted constituents (topic, focus, etc.).

8. Structure: (QP) > DP_{deixis} > FocP > TopP/ModifP > DP_{det}

According to Laenzlinger [10,11] and Cinque [37] the focus projection hosts emphatic fronted adjectives in Romance. This is illustrated in (9a) for French. The ungrammaticality of example (9b) shows that there is a single FocP available in the left periphery.

9. a. C' est une SUPERBE nouvelle occasion.
 This is a superb-FOC new occasion
 'This is a SUPERB new occasion.'
- b. *C' est une RECENTE SUPERBE voiture rouge italienne.
 This is a recent-FOC superb-FOC car red Italian
 'This is RECENT SUPERB red Italian car.'

French and other Romance languages also have a low FocP (see Samek-Lodovici [38]), situated near NP, as illustrated by the following example (see Sections 2 and 3.2).

⁵ A similar analysis can be adopted for subjunctive clauses in languages like Greek and Romanian where a subjunctive marker co-occurs with the higher complementizer. The latter merges in Force, while the former merges in Fin which is a mood-related head (see Soare [34] for Romanian).

10. (C'est) une voiture rouge italienne SUPERBE.
 (This is) a car red Italian superb
 '(This) is a SUPERB red Italian car.'

The specifier of TopP in (8) is a position for topicalized arguments and adjuncts, while the specifier of ModifP (Modifier Projection) is a position for fronted non-focalized adjectives. The order among TopP, FocP and ModifP is difficult to establish given that the left periphery of the noun phrase is more constrained in terms of constituent fronting than that of the clause. In other words, the information structure of the noun phrase is poorer (less developed) than that of the clause. This restriction is arguably due to the fact that DPs are usually embedded within CP (except in elliptic constructions, e.g., responses to questions or non-verbal expressions, e.g., interjections) and hence have indirect access to discourse contexts.

The paradigm below exemplifies movement of arguments to TopP or FocP in Serbo-Croatian, Hungarian, Russian and Greek. In (11a/a') the Dative complement is topicalized in front of the adjective of quality as the result of movement of the DP to the specifier of a left-peripheral TopP. This is also the case of the Genitive DP complement in (11b/b'). The Hungarian example in (11c') is an instance of movement of the noun's Dative complement to a topic position in the DP-layer. The Russian example in (11d') as compared to (11d) shows that the Genitive complement is fronted for topicalization or focalization effects. In (11e/e') one can observe that the Genitive Possessor DP can move to the specifier of a left-peripheral focus projection (see originally Horrocks and Stravou [39]). Finally, the Romanian example in (11f') illustrates movement of the noun's Genitive complement (see (11f)) to a topic fronted position as a marked option.

11. a. [DP [QualP velikodušana [NP pomoć] [PP u novcu] [DP siromasnima]]]]
 generous gift of money the-poor-DAT
 a'. [DP [TopP [DP siromasnima] [QualP velikodušana [NP pomoć] [PP u novcu]
 the-poor-DAT generous gift of money
 [DP siromasnima]]]]
 to-the-poor
 'a generous gift of money to the poor.' Serbo-Croatian
- b. [DP [QualP lepa [NP ćerka] [DP+Gen Slavnoy matematičara]]]
 nice girl famous mathematician-GEN
 'the famous mathematician's nice girl.' Serbo-Croatian
- b'. [DP [TopP [DP+Gen slavnoy matematičara] [QualP lepa [NP ćerka]]]]
 famous mathematician-GEN nice girl
- c. [DP egy [QualP nagylelkű [NP pénz adomány] [DP a szegényeknek] [PP a bank reszerol]]]
 a generous moneygift the-poor-DAT the bank by
 c'. [DP egy [TopP [DP a szegényeknek] [TopP [PP a bank részeöl] [QualP nagylelkű
 a the-poor-DAT the bank by generous
 [NP pénz adomány] [DP a szegényeknek] [PP a bank reszerol]]]]]
 money gift the-poor-DAT the bank by
 'a generous gift of money to the poor by the bank.' Hungarian
- d. [DP [[QualP velikolepnaya [NP mašina]] [FPGen [DP moego papi]]]
 beautiful car my father-GEN
 'my father's beautiful car.' Russian
- d'. [DP [TopP/FocP [DP moego papi +Gen] [[QualP velikolepnaya [NP mashina]] [FPpp s
 my father-GEN beautiful car with
 otkryvaiusheisia kryshjei]]]]]
 open roof
 'my father's beautiful car with an open roof.'
- e. [DP to [AdjP oreo] [DP to [NP vivlio] [DP+Gen tis Marias]]]
 the nice the book the Maria-GEN
 'Maria's nice book.' Greek [40]

- e'. [DP [FocP [DP tis Marias] [DP to [AdjP oreo] [DP to [NP vivlio]]]]]
the Maria-GEN the nice the book
- f. [DP [AdjP frumoasa] [NP mașină] [DP+Gen a lui Ion]]
beautiful car POSS the Ion-GEN
'Ton's beautiful car.' Romanian
- f'. [DP [TopP [DP+Gen a lui Ion] [AdjP frumoasă] [NP mașină]]] (marked option)
POSS the Ion-GEN beautiful car
'Ton's beautiful car.' Romanian

Note that movement (fronting) of arguments can target a Case position in the left periphery, as in the Saxon Genitive constructions in (12a,b) and the possessive construction in Hungarian in (12d) in which a Dative Case (vs. a Nominative Case in (12c)) is assigned to the possessor.

12. a. [DP [GenP [DP John]'s [DP [NP [~~John~~] book]]]] English
- b. [DP [GenP [DP Johannis] [DP [NP [~~Johann~~] Buch]]]]⁶ German
- c. [DP (a) [NomP [DP Mari] [QualP szép [NP kalap-ja]]] Hungarian [41]
the Mari-NOM nice hat
'Mari's nice hat.'
- d. [DP [DatP [DP Mari-nak] [DP a [QualP szép [NP kalap-ja]]]]]
Mari-DAT the nice hat
'Mari's nice hat.'

As already mentioned, adjective fronting can be triggered by focalization. This is the case not only in French (example (9a) and (13a)), but also in Greek (example (13b)). English also displays movement of adjectives to a left-peripheral focus position (example (13c,d)) and to a quantifier position (example (13e,f)).

13. a. [DP une [FocP SPLENDIDE [AgrP voiture [QualP splendide [NP voiture]]]]]
a splendid-FOC car
'a SPLENDID car.' French
- b. [DP to [FocP KOKKINO [DP to [NP forema] [QualP ~~kokkino~~ [NP forema]]]]]
the RED the dress
'the RED dress.' Greek
- c. These are BLACK small dogs, not white ones.
- d. [DP [FocP How clever [DP a [QualP ~~how-clever~~ [NP boy]]]]] he is !
- e. This is [QP too tough [DP a [QualP ~~too-tough~~ [question]]]]
- f. [QP Such [DP a [question]]] English

⁶ Note that Saxon Genitive is restricted to [+animate] nouns in German, as compared to English.

ii. *meines Vaters Wagen* /my father's car
iii. *meiner Mutter Wagen* /my mother's car
iv. **der Stadt Zerstörung* /^{ok}the city's destruction

As in Romance, adjectives can be fronted in Serbo-Croatian for prominence effects (see Guisti [5] for data and discussion). The adjective *lepa* 'beautiful' in (14) moves past the possessive element *moya* 'my'.⁷

14. [DP [TopP/Modif lepa [PossP moja [QualP ~~lepa~~ [NP devojčica]]]]]
 beautiful my girl
 'my beautiful girl.'
- Serbo-Croatian

In addition, there are other types of movement to the left periphery. They concern demonstratives, possessives (Genitive DPs, pronouns) and universal quantifiers in Italian, Spanish, Romanian and Greek. In the same vein as Brugè [42,43] we propose that demonstratives occur in two different positions. They externally merge in the high portion of the midfield (unlike Brugè for whom it is in the low portion near NP) and possibly move to DP_{deixis}, a noun phrase initial position. This is represented in (15).⁸

15. [DP_{deixis} ... [DP_{def/indef} ... [DemP DEM [QuantP-adj [QualP-adj ... [NP]]]]]]

The pairs of nominal constructions in (16) show that the demonstrative can occur in two positions and, when it is initial, it is in complementary distribution with the definite article.

16. a. [DP el [AgrP-NP libro viejo [DemP este [de sintaxis]]]]
the book old this of syntax
‘this old book of syntax.’ Spanish

⁷ As regards DP/PP-adjuncts, their fronting to the left periphery is very restricted in the languages studied in this paper. A case in point is Russian where a few PP-adjuncts can move to the DP-domain as a contrastive (focus) effect. This is illustrated in (v) and (vi) below.

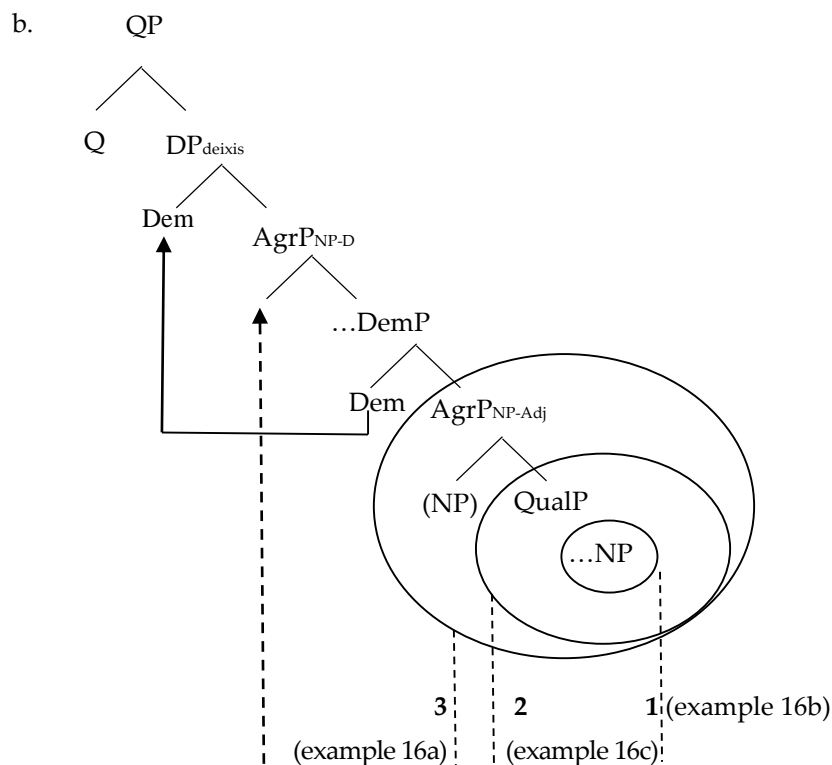
- | | | | | | | | | | | |
|-----|----|----------|------------------|------------------|---------------------------|------------------|---------------------|----------------------|---------------------------|-----------------|
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| | b. | A
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with | dlinnymi
long | rukavami
sleeves | krasnoe
red | platje.
dress | |

⁸ See also Julien [44] for a similar proposition, but also Bernstein [12] who argues against Brugé’s analysis.

- a'. [DP_{deixis} este [AgrP-NP libro [QualP viejo [de sintaxis]]]]
- b. [DP fete [D le] [DemP acestea [QualP frumoase]]]
 girls -the these beautiful
 'these beautiful girls.'
 Romanian
- b'. [DP_{deixis} aceste [AgrP-NP fete [QualP frumoase]]]
- c. [QP Sve [AgrP-NP lepe zemlje [DemP ove]]]
 all beautiful countries these
 'all these beautiful countries.'
 Serbo-Croatian
- c'. [QP Sve [DP_{deixis} ove [AgrP-NP lepe zemlje]]]
 all these beautiful countries

The structures in (17a) and (17b) show that (i) the demonstrative can move from DemP to DP_{deixis}; (ii) (case 1) the NP alone can move to an agreement position (AgrP_{NP} related to D), which corresponds to example (16b); (iii) (case 2) the QualP including the prenominal adjective and the noun phrase raises to AgrP_{NP-D} (example (16c)) and finally (iv) (case 3) the projection AgrP_{NP-Adj} whose specifier is realized by the raised NP and which includes the adjective-related projection moves to AgrP_{NP-D} (example 16a).

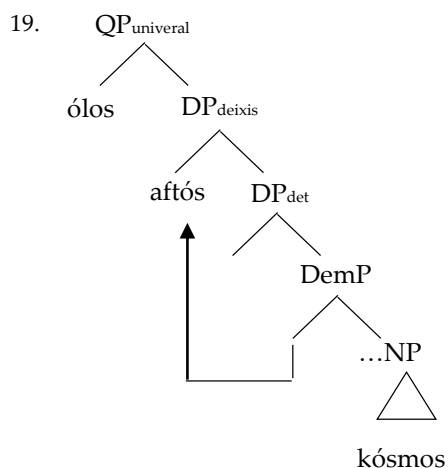
17. a. [QP Q [DP_{deixis} Dem [AgrP-NP ...[DemP Dem [AgrP NP [QualP ADJ [NP N]]]]]]]



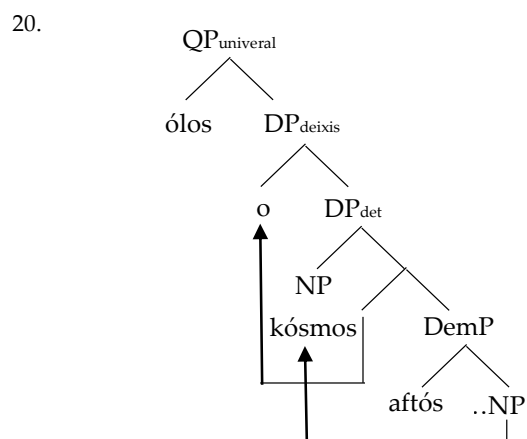
Greek displays even more complex DP-internal transformations involving a universal quantifier, a demonstrative and a definite determiner.⁹

- | | | | | | |
|--------|---------------------|--------|--------|------------|--------------------|
| 18. a. | ólos | aftós | o | kósmos | Q < Dem < Det < N |
| | all | this | the | people(sg) | |
| | 'all these people.' | | | | |
| b. | *o | aftós | ólos | kósmos | *Det < Dem < Q < N |
| | the | this | all | people | |
| c. | ólos | o | kósmos | aftós | Q < Det < N < Dem |
| | all | the | people | this | |
| d. | o | kósmos | aftós | ólos | Det < N < Q < Dem |
| | the | people | all | this | |

The example (18a) is assigned the structural representation in (19).

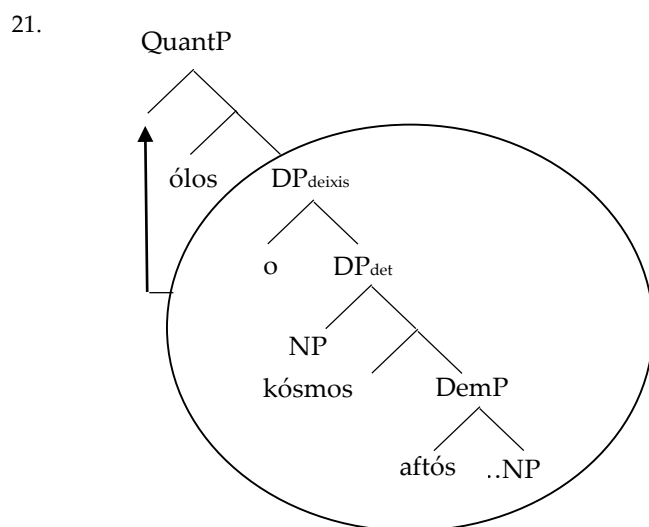


The tree in (20) corresponding to example (18c) shows that the noun raises as an NP to DP_{det}, while the determiner moves from D_{det} to D_{deixis}. As for the demonstrative, it remains in its base position.



⁹ Note that the prenominal raised demonstrative is compatible with a definite determiner in Greek contrary to Spanish and Romanian

The structure in (21) holds for the order in (18d). On the basis of the order in (20) there is further pied-piping movement of DP_{deixis} to the specifier of QuantP, hence the final position of the universal quantifier.



One should notice that the reverse prenominal order cannot be derived from any types of movement on the basis of the base order in (20). This constraint is reminiscent of Cinque's left-right asymmetry (see Section 3).

As in the case of double/multiple complementizers, determiner reduplication provides further evidence in favor of the split-DP structure. Consider first the case of French superlatives, as in (22). We can observe that there is definite determiner doubling.

22. [[DP₁ *la* [SuperlP *plus belle* [DP₂ *la* *fille* [blonde]]]]]
 the most beautiful the girl blond
 ⇒ [[DP₂ *la* *fille* [blonde] [DP₁ *la* [SuperlP *plus belle* [DP *t*]]]]
 the girl blond the most beautiful
 'the most beautiful blond girl.'

Following recent proposals, the projections labeled SuperlP in (22) contains Corver's DegP [45] and can be identified as Alexiadou's PredP [46], Kayne's Small Clause [47], or Cinque's Reduced Relative Clause [37,48]. Given the derivation in (22) the lower DP₂ moves to the specifier of DP₁ past the superlative projection. Each D is realized lexically as a definite determiner.¹⁰

Romanian also displays determiner doubling, but with two different determiners, namely *-ul* and *ce(l)* in (23a–c).

23. a. *mărul cel roșu*
 apple-the (the) red
 'the red apple.'
- b. *studenții cei interesați (de lingvistică)*
 students-the (the) interested (in linguistics)
 'the students interested in linguistics.'
- c. *casa cea de piatră*
 house-the (the) of stone
 'the house of stone.'

¹⁰ There are alternative analyses in terms of N(P)-ellipsis or postnominal predication (see Alexiadou [46] (pp. 68ff) and references cited therein).

The determiner-like element *ce(l)* can be prenominal in front of quantifier-like prenominal elements (as a last resort strategy according to Cornilescu [49]), as in (24).

24. cele două legi
the two laws

The postnominal *ce(l)* is associated with predicative elements, hence it is involved in a predicative structure (Cornilescu [49] and Cinque [48]; see also Marchis and Alexiadou [50] for an analysis in terms of pseudo-polydefiniteness, Cornilescu and Nicolae [51], Sleeman and Perridon [52], and Sleeman et al. [53] for discussion and references therein).

In Scandinavian (e.g., Norwegian, Swedish) a definite determiner (article) and a definite suffix co-occur only when a prenominal adjective is used.

25. den *(nya) bok-en Swedish
the new book-the
'the new book.'

We assume that *den* stands in D_{deixis} and *-en* in $D_{\text{determination}}$. The noun plus the adjective (extended NP-movement) moves to the specifier of $D_{\text{determination}}$. The question arises as to why determiner doubling is restricted to the context of prenominal adjective occurrence. The presence of adjectives is a trigger for multiple determiner occurrences in languages like Greek, Romanian and Scandinavian. However, Alexiadou shows that the multiple determiner is not a unified phenomenon crosslinguistically, and this was also the case of the multiple complementizer [46].

Hebrew also displays some sort of determiner reduplication (see Alexiadou [46]), as the example in (26) shows with the use of the prefix *ha-*.

26. ha-rabanim ha-fanatim ha-'elo
the-rabbis the-fanatic the-these
'these fanatic rabbis.'

Shlonsky argues that the case in (26) differs from determiner reduplication/spreading in that the reduplicated morpheme *ha-* is analyzed as an agreement marker rather than a true determiner [54].

Determiner spreading in Greek is a much debated topic in Generative Grammar, especially within the framework of the DP-hypothesis (Alexiadou [46], Alexiadou and Wilder [55], Panagiotidis and Marinis [56]). The split-DP analysis sheds new light on this phenomenon. Consider first some facts. Determiner spreading is only possible with the definite determiner, as shown by the contrast between (27) and (28).

27. a. to kókkino (to) vivlió
the red the book
'the red book.'
- b. to vivlió (to) kókkino
the Book the red
28. a. ená kókkino (*ená) vivlió (cf. dialects of German)
a Red a book
'a red book.'
- b. ená vivlió (*ená) kókkino
a book a red

In addition, determiner spreading in (27), which is not obligatory, is possible with prenominal and postnominal predicative adjectives.¹¹ It is also interesting to point out that determiner spreading

¹¹ Determiner Spreading is not possible with non-predicative adjectives such as *alleged*, *Italian* and with adjectives selecting a complement like *proud of his son N* (see Alexiadou and Wilder [54], Cinque [37,48], Laenzlinger [24] and Alexiadou [46]).

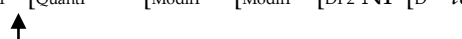
can be total or partial. This is illustrated by the examples in (29) taken from Alexiadou and Wilder [55] and Leu [57].

29. a. *to* *megálo* *to* *kókkino* *to* *vivlió* (total)
 the big the red the book
- b. *to* *megálo* *to* *vivlió* *to* *kókkino* (total)
 the big the book the red
- c. *to* *megálo* *to* *kókkino* *vivlió*
 the big the red book (partial)
 ‘the big red book.’
- d. *to* *megálo* *kókkino* *vivlió*
 the big red book (partial)

However, not all partial combinations are permitted given the ungrammaticality of (30).

30. a. **to* *megálo* *kókkino* *to* *vivlió*
 the big red the book
- b. **to* *vivlió* *to* *megálo* *kókkino*
 the book the big red
- c. **to* *vivlió* *megálo* *to* *kókkino*
 the book big the red
- d. **to* *megálo* *to* *vivlió* *kókkino*
 the big the book red

On the basis of these facts we propose that determiner spreading is a phenomenon of the left periphery involving D_{det} -to- D_{deix} movement (see (31)) through the head of Modifier Projections whose specifier is occupied by the prenominal fronted adjective (see (32)). Such movement may leave possible spelt-out copies of the raised determiner and the chain of copies cannot be broken, as shown by the ungrammaticality of (30) (see Larson and Yamakido [58,59] for a similar analysis in terms of spell out of D-copies).¹²

31. [DP1 [QuantP [ModifP [ModifP [DP2 NP [D *to*]]]]]]
- 

32. a. [DP1 *to* [ModifP *megálo* *to* [ModifP *kókkino* *to* [DP2 *vivlió* [D \emptyset]]]]]]
- b. [DP1 *to* [ModifP *megálo* (*to*) [ModifP *kókkino* (*to*) [DP2 *vivlió* [D \emptyset]]]]]]

The analysis of the example (29b) is quite complex: the adjective of size moves to the left-peripheral ModifP, the noun to a topic position within DP and the adjective of color to a focus or Modif position. This is represented in (33).

33. [DP1 *to* [ModifP *megálo* *to* [TopP *vivlió* *to* [FocP/ModifP *kókkino*] [DP2 [D \emptyset]]]]]]

A question arises from the impossibility of determiner spreading with indefinites in Greek contrary to some German/Swiss dialects and Northern Swedish (e.g., *ein ganz ein guete Wi* ‘a totally

¹² There are alternative proposals in the literature, especially in terms of Reduced Relative Clause or Small Clause (Alexiadou and Wilder [55] on the basis of Kayne [47], Cinque [37,48]; see Alexiadou [46] for a review).

a good wine', *en store n kar* 'a big a man', examples drawn from Alexiadou [46] (pp. 96–97). Again, this contrast shows that “multiple determiner” is not a uniform phenomenon crosslinguistically.¹³

So far, we have observed some structural and derivational parallelism in terms of split-C/split-D, Fin-to-Force/D_{det}-to-D_{deix}-movement and complementizer/determiner doubling and spreading. However, there are differences in the occurrence and inner configuration of discourse-related projections between the CP and DP layer, and the CP-domain is richer than the DP-domain in terms of information structure.

2.3. vP/nP and Their Left Periphery

vP and nP are the thematic domain of the clause and of the noun phrase, respectively. Arguments externally merge in this domain according to the following Universal Thematic Hierarchy¹⁴ (Grimshaw for the clause [61], Jackendoff [62], Baker [63]) and Universal Thematic Assignment hypothesis (Baker [64]).

34. (POSS >) AGENT > (EXPER) > BENEF > THEME/PATIENT > LOCATION

Right above the thematic domain, there are focus and topic projections at the left-border of vP (Belletti [65,66], Lahousse et al. [67]) and possibly nP (Laenzlinger [24], Samek-Lodovici [38]). As far as the clause is concerned, the right periphery (*Nachfeld*) looks like (35).

35. ... [TopP Top¹⁵ [FocP Foc [vP Agent [vP Beneficiary V Theme/Patient]]]]

As for the noun, deverbal and agent-related nouns (*destruction, gift, picture, painting, etc.*) are particularly relevant to the hierarchy in (34) (e.g., *the bank_{Agent}'s gift of money_{Theme} to the poor_{Beneficiary}*). As proposed by Laenzlinger [10,11], the left periphery of NP is also the locus of a focus position and a predicative projection. In (36a) the right-hand focalized adjective occurs in the low focus position, and the predicative participial adjective in (36b) occupies the specifier of a low predicative projection (or reduced RC). The noun and the other adjectives/adjuncts are situated at Spell-Out in positions higher than FocP/PredP and the NP-domain (see Section 3.2 for details).

36. a. une voiture italienne rouge [FocP (vraiment resplendissante) /SPLENDIDE [NP]
 a car Italian red (really resplendent) /SPENDID
 'a SPLENDID red Italian car (really resplendent).'
- b. une voiture rouge De sport [PredP toute équipée [NP]
 a car red of sport all equipped
 'a red sport car all equipped.'

As for arguments, they leave the domain where they externally merge to reach dedicated positions where their case- and ϕ -features as well as their information structural features can be valued. This is expressed in the full nP/vP evacuation principle in (37).¹⁶

¹³ As suggested by an anonymous reviewer, this difference may be due to the fact that indefinites are quantifiers, not articles, in Greek (see Laenzlinger [24] (p. 178) for a similar proposal).

¹⁴ See the references cited in Alexiadou et al. [60] (pp. 503ff) for the thematic hierarchy within the noun phrase. This analysis in terms of NP-internal thematic hierarchy has been challenged by Grimshaw [61] among others.

¹⁵ TopP is higher than FocP, as shown by the following contrast:

vii. Chi ha letto questo libro? Ha [TopP letto questo libro [FocP Gianni [vP letto-questo libro]]]
 Who (has) read this book (Has) read this book Gianni
 vs. *Ha letto [FocP Gianni [TopP questo libro [vP letto-questo libro]]] [64]

¹⁶ This principle is based on the fact that nP and vP are phases (see Svenonius [68], Cornilescu and Nicolae [51]) and their arguments must move to an edge position to be accessible for Agree (to be probed). This position is externally to nP and vP given Kayne's Linear Corresponding Axiom [47] (nP and vP cannot have more than one specifier).

37. Full nP/vP evacuation principle: “All arguments must leave the vP (and nP) domain in order to have their A-features (i.e., Case and φ) and I-features (i.e., informational features such as top, foc) checked/matched/assigned/valued in the overt syntax.” [69] (p. 19); [10]

Laenzlinger [24] proposes that the information structural features are parasitic on Case/Agreement features in the *Mittelfeld* and are realized on dedicated heads/projections in the left and right periphery (Rizzi [25,29], Belletti [65,66]). Within the same framework it is argued that verb raising is realized as (possibly extended) vP-movement and noun raising as (possibly extended) nP-movement. Since the arguments have evacuated the vP/nP domain, such movement is an instance of remnant movement. Recall that head movement is very local and limited to V to v, N to n, Fin to Force, and D_{det} to D_{deix}.

3. The *Midfield*: The Order Among Complements and Adjuncts

In Section 1 we have introduced Cinque’s [28] left–right asymmetry schematized as (38).

38. a. ^{ok}AB(C) H°
 b. *(C)BA H°
 c. ^{ok}H° AB(C)
 d. ^{ok}H° (C)BA

We will test the validity of this asymmetry for portions of the *Midfield* of the clause, where the head H° in (38) corresponds to the verb (V), and, similarly, for portions of the noun phrase, where H° corresponds to the noun (N).

On the basis of (38), Cinque accounts for Greenberg’s Universal 20 involving the respective order of demonstratives, numerals and adjectives in pre- and postnominal position [70]. Given the base order in (39) realized in English (no NP-movement), it is possible to have the same linear postnominal order in (40) realized in Kĩtharaka, a Bantu language. This order results from successive NP-movement past the demonstrative, the numeral and the adjective. In Gungbe (example (41) from Aboh [27]) the postnominal order of Dem, Num and Adj is the mirror-image one of the prenominal order in English (39). This order is obtained after successive pied-piping roll-up movement (Cinque [70] (p. 324)). Leaving aside some other postnominal possible orders, the prenominal sequence in (42) is not attested crosslinguistically. In fact, without NP-movement, there is no way to derive such a prenominal reverse order from the base order in (39).

- | | | | | | |
|-----|---------------------------------------------------|--------------------------|----------------------------|-------------------------|---------------------------------------|
| 39. | Dem >
these | Num >
five | Adj >
nice | N
cars | |
| 40. | N >
i-kombe
8-cup
'these five red cups.' | Dem >
bi-bi
8-this | Num >
bi-tano
8-five | Adj
bi-tune
8-red | (NP-movement)

Kĩtharaka, Bantu |
| 41. | N >
àgásá
crabs
'these three big crabs.' | Adj >
dàxó
big | Num >
àtón
three | Dem
éhè
DEM | ló
DET
NB
Gungbe |
| 42. | *Adj > Num > Dem > N | | | | |

Another illustration of Cinque’s left–right asymmetry within the noun phrase is adjective ordering in pre- and postnominal contexts. The sequence of adjectives in Germanic illustrated in (43) for English is considered the basic one. The postnominal order of adjectives in (44) is linearly the same as in the

prenominal order in (43). This order is attested in Romance and Gaelic and results from NP-movement past the adjectives. The examples of French (Romance) and Hebrew in (45), which contain adjectives of different types, display the reverse order of postnominal adjectives as compared to the basic prenominal order in (43). Such an order results from pied-piping roll-up movement (extended NP-movement, see Laenzlinger [11], Shlonsky [54] for details). As in the case of (42), the reverse order of prenominal adjectives with respect to the basic order in (43) is not possible unless the first adjective is focalized ('These are *black* small dogs, but not white ones'). In the absence of NP-movement, this order cannot be derived. The case of adjective focalization results from movement of the adjective to a left-peripheral focus position (see Section 2.2).

43. Adj1 > Adj2 > N Germanic
red American car
44. N > Adj1 > Adj2
- a. un vase ovale chinois
 a vase oval Chinese
 'an oval Chinese vase.' Romance (French)
- b. cupán mór cruinn
 cup large green
 'a large green cup.' Irish (see also Welsh)
45. N > Adj2 > Adj1
- a. une voiture américaine rouge/splendide
 a car American red/splendid French
 'a splendid red American car.'
- b. para švecarit xuma
 cow Swiss brown
 'a Swiss brown cow.' Hebrew
46. *Adj2 > Adj1 > N unless Adj2 is focalized
(These are BLACK small dogs, not white ones.)¹⁷

Let us now consider whether the left–right asymmetry in (38) holds for the distribution of complements and adjuncts around the verb within the clause (Section 3.1) and the noun within the noun phrase (Section 3.2).

3.1. The Clause

Cinque proposes the universal hierarchy of adverbs in (47) [22].

¹⁷ However, there are limits to such mirror-ordering of adjectives under focalization, as shown by the contrast between (i) and (ii).

viii. beautiful small black dogs

ix. *BLACK beautiful small dogs/*BLACK small beautiful dogs.

Schweikert [78], Tescari Neto [79] for relevant discussion).¹⁹ This is illustrated in (52) and represented in (53).

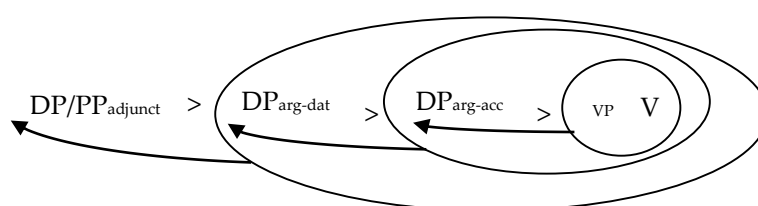
52. a. La banque a récemment donné de l'argent aux pauvres avec une grande générosité.

b. The bank recently gave some money to the poor with great generosity.

53. $[V < DP_{Acc} < DP_{Dat} < PP_{adjunct}]$ ²⁰

The reverse order in (52) is obtained after successive roll-up derivation giving rise to “snowballing” effects. This is represented in (54) in a simplified way. After the Acc- and Dat-arguments have evacuated vP and reached their Case-related position, the verb raises cyclically, first as vP past the Acc-argument, then as the extended projection containing the verb and its Acc-object past the Dat-object and finally as the extended projection containing the verb and two object arguments past the PP-adjunct position which merges in a position higher than the objects, hence the “snowballing” effect.

54.



As such, this is a (partial) illustration of Cinque's [23,28] left–right asymmetry in natural language applied to the *Mittelfeld*'s neutral order (Adjunct OV vs. VO Adjunct).

To summarize, the possible types of movement that apply to the clausal internal structure are given in (55).

55. Once the arguments evacuated from vP, the verb alone can undergo remnant (possibly extended) vP-movement. As further steps, the verb and its extended projection can undergo pied-piping movement of two types: *whose-picture* (Spec-head, i.e., [V + Adv]) or *picture of whom* (Head-Compl, i.e., [Adv + V]). If pied-piping movement is successive, roll-up effects are obtained (snowballing).

¹⁹ This is similar for the noun phrase (Laenzlinger [24] and see also Section 3.2).

x. a. le récent don d'argent aux pauvres (par la banque) avec/d'une grande générosité

b. the recent gift of money to the poor (by the bank) with great generosity

²⁰ In German V2 contexts, as in the SVO configuration in (ia-b), the reverse postverbal order is also possible, although this word order is rather marked (Accusative preceding Dative and the PP-adjunct occurring in sentence-final position).

xi. a. Hans schickte das Geld seinem Bruder aus Großzügigkeit.
Hans sent the money his-DAT brother by generosity
'Hans sent the money to his brother with much generosity.'

b. Die Bank gab das Geld den Armen aus Großzügigkeit.
The bank gave the money the-DAT poor by generosity (more marked)
'The bank gave money to the poor with much generosity.'

In addition, the order in (iia) is also marked. The less marked order is the one given in (iib), as in V-final clauses.

xii. a. Die Bank gab den Armen das Geld aus Großzügigkeit. (marked)

b. Die Bank gab aus Großzügigkeit den Armen das Geld. (less marked)

3.2. The Noun Phrase

As in the case of adverbs within the clause, there is a hierarchy of adjectives within the noun phrase. Following Cinque [4], Laenzlinger [10,11,24], and Scott [80], the simplified hierarchy can be established in (56) for event-denoting nouns and (57) for object-denoting nouns Laenzlinger [11] (p. 650).

56. Adj_{speaker-oriented} > Adj_{subject-oriented} > Adj_{manner} > Adj_{thematic}
 ‘the probable clumsy immediate American reaction to the offense’
57. Adj_{quantification} > Adj_{quality} > Adj_{size} > Adj_{shape} > Adj_{color} > Adj_{nationality}
 ‘numerous wonderful big American cars’
 ‘various round black Egyptian masks’

Cinque provides a more fine-grained hierarchy with dual positions for direct/indirect adjectival modifiers [37] (see also Sproat and Shih [81,82], Larson [83]) and the possible position for the noun in Germanic and Romance. See (58) and Table 1.

58. a. English: AP in a reduced RC > direct modification AP > N > AP in a reduced RC
 b. Italian: direct modification AP > N > direct modification AP > AP in a reduced RC

Table 1. APs in reduced RCs vs. APs in direct modification.

APs in Reduced RCs (Only Predicative)	APs in Direct Modification (Only Non-Predicative)
intersective (<i>bald, blonde, ...</i>)	adverbial (<i>former, total, mere, ...</i>)
‘for a N’ subjective (<i>tall, big, ...</i>)	modal (<i>possible, alleged, ...</i>) ‘as a N’ subjective
(<i>skillful, beautiful, ...</i>)	privative (<i>false, fake, ...</i>)

This paper is not only concerned with adjective ordering and positioning, but also with the respective order of complements and adjuncts before and after the noun.²¹

The order of DP/PP-complements/arguments and adjuncts is tested with deverbal nouns since they overtly express a thematic and Case-hierarchy. We first consider N-final languages like Japanese and Tatar which display neutral order of prenominal elements, as illustrated in (59) and represented in (60).

59. Japanese (=Tatar, a head-final Turkic language)
- a. kooseinoo bakudan-de-no Amerikajin niyuru machi-no yôshanai hakai
 high-tech weapon-with-GEN American by city-GEN brutal destruction
 ‘the destruction of the city by the Americans with high-tech weapons’
- b. ginkô niyuru mazushii hito e no okane-no kandaina kifu
 bank by poor people to-DAT money-GEN generous gift
 ‘a generous gift of money to the poor by the bank’

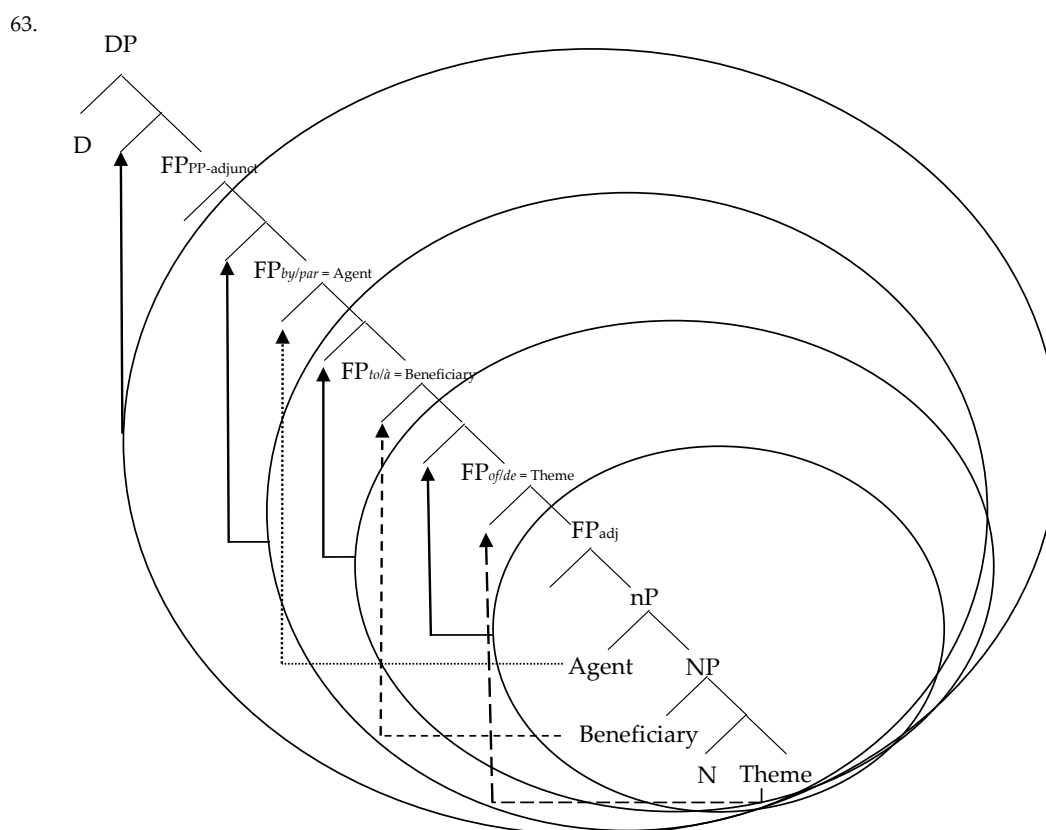
60. PP_{adjunct} > PP_{argument} > DP_{Dative} > DP_{Genitive} > Adjectives > N Japanese and Tatar (unmarked/neutral order)

The nominal constructions in French and English given in (61a–d) show that the neutral linear order of postnominal elements is the mirror-image of the prenominal order in (60), as represented in (62).

²¹ Note, however, that the hierarchy of adjectives shows differences with respect to the hierarchy of adverbs, especially in the case object-denoting nouns. Despite the fact that adjectives and adverbs share this common property of merging as unique ordered specifiers, adjectives can have dual merged positions contrary to adverbs (except for few of them, i.e., *often* and *completely*).

61. a. the brutal destruction of the city by the enemy with heavy artillery
 b. la destruction brutale de la ville par l'ennemi avec de la grosse artillerie
 c. a recent gift of money to the poor by the bank with great generosity
 d. le don récent d'argent aux pauvres par la banque avec/d'une grande générosité
62. *of/de* (GEN) < *to/à* (DAT) < *by/par* (OBL) < PP_{Adjunct}

Given the base order in (60), the nominal structure in (62) contains a hierarchy of PP-related projections²² in the *Mittelfeld* between the DP-border and the adjective-related projections. The unmarked sequences of PPs in (61a–d) are derived from successive roll-up movement, as schematized in (63). More precisely, as a first step the arguments leave the nP-domain and move to their dedicated argumental PP-related position (FP_{by} > FP_{to} > FP_{of}). The adjective-related projection which contains the adjective and the noun undergoes successive roll-up movement through PP-related projections and reaches a position higher than that of the PP-adjunct.



So far, the higher part of the French *Mittelfeld* has been made of the following sequence of PPs: (recursive) *de*-phrase < *à*-phrase < *par*-phrase. Such an order can be refined if we take the co-occurrence of *de*-PPs into consideration, as exemplified in (64) (see Laenzlinger [10] for a thematic hierarchy of PP-positions in the French noun phrase).²³

²² The categories K and P (Kayne [73]) are simplified here as FP_{pp} for ease of representation. This more simplified notation will be used in the remaining part of the present paper.

²³ Some of these examples are borrowed from Milner [84], Ruwet [85] and Cinque [86] (see also Alexiadou et al. [60] (p. 583)), and are slightly modified.

64. a. le tableau d'Aristote de ce collectionneur par Rembrandt (d'une grande beauté)
 the painting of Aristote of this collector by Rembrandt (of great beauty)
 'This collector's painting of Aristote by Rembrandt (of great beauty).'
- b. le tableau de Rembrandt du Louvre (d'une grande beauté)
 the painting of Rembrandt from the Louvre (of great beauty)
 'Rembrandt's painting from the Louvre (of great beauty).'
- c. l'ordre de départ du général à ses troupes (par le général) avec fermeté
 the order of departure of the general to his troops (by the general) with strictness'
- d. la promesse de bonté de Jean à l'Eglise (avec sincérité)
 the promise of kindness of Jean to the Church (with sincerity)
 'Jean's promise of kindness to the Church (with sincerity).'
- e. l'envoi d'une lettre à Marie de Paris par Jean (avec amour)
 the sending of a letter to Marie from Paris by Jean (with love)

The unmarked orders of postnominal complements realized in these examples show that co-occurring *de*-PPs are (preferably) used according to the linear series of PP's in (65).

65. $D < N < de\text{-Theme} < de\text{-Agent} < à\text{-Goal} < de\text{-Source} < par\text{-Agent} < \text{Adjunct}$

This order is derived from successive roll-up movement steps that apply to the midfield structure in (66), which gives rise to the mirror-image order (see also 63 above for some details in terms of derivation).

66. $DP > FP_{pp} [ADJUNCT] > FP_{par} [AGENT] > FP_{de} [SOURCE] > FP_{à} [GOAL] > FP_{de} [AGENT] > FP_{de} [THEME] > \dots n/NP$ (see Laenzlinger [24,71])

Scrambling/reordering of postnominal elements is always possible as a marked option. These alternative orders involve subtle information structural effects, as for instance in French:

67. a. l'envoi par Jean d'une lettre à Marie de Paris avec amour
 the sending by John of a letter to Mary from Paris with love
- b. l'envoi à Marie d'une lettre par Jean avec amour
 the sending to Mary of a letter by John with love

This is a case of DP-internal scrambling, probably an instance of single XP-movement and is similar to CP/TP-internal scrambling of arguments/complements (German, Japanese, French).

So far, the possible types of movement within the noun phrase are summarized as (68).

68. The noun alone can undergo remnant (possibly extended) nP/NP-movement. Then, the noun and its extended projection can undergo pied-piping movement of two types: *whose-picture* (Spec-head, i.e., N + Adj) or *picture of whom* (Head-Compl, i.e., Adj + N). If pied-piping movement is successive, roll-up effects are obtained (snowballing).

Thus, we can observe that both the clause and the noun phrase display the same types of movement (compare (68) with (55)), although their application is not strictly parallel due to structural differences, especially in the midfield and the left periphery.

4. Conclusions

In this paper, we have offered a cartographic study of the left periphery, the midfield and, to a lesser extent, the *Nachfeld* (thematic domain and its left periphery) of both the clause and the noun phrase in several languages of different families (Romance, Germanic, Slavic, Greek, etc.). We have seen that Cinque's left-right asymmetry holds for different parts of the clausal and nominal

structure, especially concerning the order of adjuncts and arguments in the midfield, on the basis of a comparison between head-final and head-initial configurations. The so-called parallelism between the clause and the noun concerns (i) the division of both the clausal and nominal structures into three parallel domains and (ii) the possible types of movement (short head-movement, single XP-movement, remnant movement and pied-piping movement). However, there are differences in the conditions of application on some of these movement types between the clause and the noun phrase. More precisely, the derivational steps of vP and nP movement proceed differently due to Case and agreement properties. This is also the case for possible derivations involving complements/arguments within the clause and the noun phrase.

In addition, we have observed that the left periphery as well as the midfield of the clause and the noun phrase show significant differences (i.e., non-parallelism) in their internal organization involving the respective distribution of adverbs/adjectives,²⁴ DP/PP-arguments and DP/PP-adjuncts. More precisely, we have seen that the left periphery is richer, or more developed, in terms of structures and discourse properties in the clause than in the noun phrase. This is attributed to the fact that the noun phrase has a less direct access to the discourse context being usually embedded within the clause.

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²⁴ Adverbs and adjectives as modifiers merge as unique specifiers, but they are not organized in the same way hierarchically (Cinque [22], Cinque [37]) except in the case of derived/deverbal nominals.

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