

1 Introduction

As extensively discussed in this book, determiners are functional items whose role is to introduce nominal expressions. They do not carry a reference themselves, but rather express morphological, semantic and/or pragmatic features such as gender, number, definiteness, specificity, uniqueness, presupposition, familiarity, anaphoricity, identifiability etc. In the present Chapter, we concentrate on how determiners (and DP internal items) behave in relation to how speakers package the information conveyed in their sentences so as to fulfill their and the hearer(s) communicative needs i.e, the relation between determiners and information structure. Two information-structural notions will be central here: (aboutness) topic and focus. When it comes to topics, we adopt the definition put forward by Reinhart (1981), according to which a topic is the entity a sentence is about. Using a file card system analogy, Reinhart proposes that the topic is the file card heading with which the proposition conveyed by a sentence should be associated. The notion of topic is well illustrated with Krifka's (2007) examples in (1). These two sentences convey the exact same information. What however distinguishes them is that in (1a), the information should be stored under *Aristotle Onassis* and in (1b) under *Jacqueline Kennedy*.

- (1) a. [Aristotle Onassis]_{Top} married Jacqueline Kennedy.
b. [Jacqueline Kennedy]_{Top} married Aristotle Onassis.

Krifka adds to Reinhart's approach the idea that a topic can also be a set of entities, taking care of examples like (2) in which a quantifier relates two sets (i.e. $\lambda x.x$ is a zebra and $\lambda x.x$ is sick).

- (2) a. [Every zebra]_{Top} in the zoo was sick.
b. [Most zebras]_{Top} in the zoo were sick.

From a syntactic perspective, topical expressions are often found at sentence/clausal-edges, either as grammatical subjects or as scrambled/dislocated phrases. Some languages, like Japanese and Korean, also have morphological markers associated with topics (respectively *-wa* and *-(n)un*).

As for the notion of focus, we follow Rooth's (1985, 1992) alternative semantics according to which focus is an indicator that alternatives of the same semantic type are relevant for the interpretation of an expression. Example (3), adapted from Krifka (2007), illustrates the contribution of focus to the interpretation of a sentence.

- (3) A. Who stole the cookie?
B. [PETER]_F stole the cookie.
a. Ordinary meaning: Peter stole the cookie.
b. Focus-induced alternatives: Someone stole the cookie.

In (3Bb), the alternatives of the same semantic type relevant for the interpretation of *Peter* are understood as other entities present in the context, and more specifically persons, as indicated by the question word *who* in (3A) (e.g. *Mary, John, Sue* etc).

Cross-linguistically, there exists various means of indicating that an expression is focused. Typically, in Germanic languages, focus carries the sentence main prosodic prominence (among others, Chomsky 1971, Jackendoff 1972, Reinhart 1995). In other languages, like Hungarian, a specific syntactic location is clearly associated with (exhaustive) focus, which has been argued to be the position where sentence stress is neutrally assigned (Szendrői 2001, 2003).

In this chapter, we will thus discuss whether determiners lend themselves to being focused and topicalized, as well as the interpretative, syntactic and prosodic effects. The chapter is structured as follows. Section 2 concentrates on interpretative effects of topic/focus marking determiners. We will first discuss semantic aspects of marking a determiner itself as topicalized or focused and then how different types of determiners might (or not) semantically affect the ability of entire DPs to be topicalized or focused. In Section 3 we discuss proposals that argued for a parallel between the syntactic make-up of the noun phrase and clausal syntax. In particular, we discuss approaches that assume various information-structurally relevant functional positions inside the noun phrase, as well as proposals regarding noun phrase-internal focus movement. These proposals all subscribe to at least a weak version of the Cartographic assumption, namely that the interpretation of a particular constituent is determined by its syntactic position in the functional hierarchy. In Section 4, we discuss alternative proposals that relate noncanonical NP-internal word order variations inside the NP from a prosodic perspective. Section 5 concludes the paper.

2 Meaning of DP-internal topic and focus

2.1 Interpreting focused or topicalized determiners

Based on Reinhart's (1981) definition of topic, given in Section 1, it should come as no surprise that determiners do not make for good sentence topics, as they are not referring expressions. Indeed, it is unclear to us what it would mean for a determiner, on its own, to be the subject of the predication expressed by a sentence. Things are however different when it comes to the ability of determiners to be focused. Just like other types of expressions, a determiner can be contrasted with other determiners.

One account that puts forward an explicit semantics for focused determiners was Umbach's (2006) article exploring the interpretation of German indefinite and definite noun phrases with main stress and focus on the determiner itself. Let us summarise her account here. Umbach showed that indefinite and definite NPs carrying a focus on the determiner systematically licence two different readings and that both readings can be accounted for if we assume that the focal determiner invoked alternatives in a Roothian (1992) fashion. Let us turn to indefinite NPs first. As (4a) shows one of the readings that the DP with stress on the indefinite article has is a quantificational one. In this reading the contrast set involves other numerals. In contrast, in (4b), which Umbach calls the referential, specific reading, the speaker has in mind a specific referent for the DP, namely Ballack, and the contrast is

between this individual and other contextually salient individuals. The speaker expresses that they have in mind a property that uniquely identifies a particular member of a previously identified group of individuals (i.e. players) but also that they are not willing at that moment to reveal what that property is or which individual.

- (4) a. EIN_F Spieler kann noch ausgewechselt werden, aber nicht zwei.
 a player can still replaced be but not two
 'One [player] can still be replaced but not two.'
- b. EIN_F Spieler kann den Einzug ins Halbfinale noch retten, nämlich
 a player can the entry into semi-final still save namely
 Ballack.
 Ballack.
 'One [player] can secure the qualification for the semi-final, namely
 Ballack'.

A similar pair of interpretations is available for focused definite determiners. As (5) shows, the focus on the definite determiner can indicate contrast with the indefinite determiner. So the Roothian contrast set would be {the hope, a hope}. Similarly to (4a), in (5a), there is no necessary partitive interpretation: it need not be previously established knowledge that there is any hope-bringer.

- (5) a. Ballack ist nicht DER_F [Hoffnungsträger], sondern höchstens ein
 Ballack is not the hope-bringer rather at most a
 Hoffnungsträger im Spiel gegen Polen.
 hope-bringer in game against Poland
 'Ballack is not the (unique) hope but only one hope in the game
 against Poland.'
- b. (Und dann gab Ballack den Ball ab zu Klose.) DER_F Spieler
 and then gave Ballack the ball on to Klose the player
 schoss ihn ins Tor.
 shot it in-the goal
 'Then Ballack passed the ball to Klose. This player / He shot it into the
 goal.'

In (5b) the definite NP *DER_F Spieler* picks up an antecedent from the previous discourse context, indicating a contrast between the intended referent (i.e. Klose) and other previously introduced player referents (Ballack). In this case, these NPs presuppose an (implicit) demonstration gesture (Roberts 2002). So, the set of alternatives for (5b) comprise player antecedents, {Ballack, Klose}.

Overall, we can see that the contrast sets that can be evoked in both the case of the indefinite and the definite determiner, either rely on the prima facie meaning of the determiner itself (i.e. numeral in (4) or definiteness in (5)) or they are used partitively to refer to a previously established set of entities, either to pick up a single specific member, as in (4b), or to identify one member as opposed to another, as in (5b). Note that in the last instance, the uniqueness presupposition of the definite article is explicitly violated. Nevertheless, as Umbach explains, all these readings follow from a Roothian interpretation

invoking contrast sets based on the meanings of the determiners without any further assumptions.

More recently, Krifka (2016) also discusses the interpretation of sentences with a focused determiner. This is the case in his example in (6B), where the quantificational determiner is simultaneously focused and part of a DP which is the contrastive topic of the sentence. An appropriate context for this sentence is given in (6A).

- (6) A: What happened to the cooks? Were they hired or fired?
B: [[SOME]_F cooks]_{Top} were [HIRED]_F. (Krifka: 263, ex. 52)

According to Krifka, focus on the determiner *some* indicates alternatives within the set of quantifiers (e.g. *all*, *most* or *no*). As the context question in (6A) indicates, the discourse is about a given set of *cooks*. Focus on the determiner here goes together with a discourse-given interpretation of the restriction *cooks* which, in its turn, forces a partitive or strong reading of the DP (consistent with Büring's (1996) account of the partitive reading). Krifka however notes that focus on the quantificational determiner can only lead to a partitive interpretation if "there is a focused-induced alternative that is itself partitive". He illustrates this point with example (7).

- (7) A: How many cooks were hired?
B: [Three]_F cooks were hired. (Krifka: 264, ex. 54)

In contrast with *some* in (6B), the numeral quantifier *three* in (7B) does not have as a salient alternative a partitive quantifier such as *all* or *most*. The pattern of implicature cancellation visible in (8) also supports this interpretation.

- (8) a. SOME cooks have been fired, perhaps ALL / MOST / FOUR cooks.
b. THREE cooks have been fired, perhaps *ALL / *MOST / FOUR cooks.
(Krifka: 264, ex. 55)

Despite the fact that it can generally be used in partitive constructions (e.g. *three of the cooks were fired*), Krifka notes that the focused numeral quantifier cannot in (8B) be associated with a partitive reading.

Another interesting example of the effect of focus on the interpretation of determiners is visible in example (9), where focusing the quantificational determiner *every* affects its scope.

- (9) a. What did [every guest]_{Top} bring to the party?
b. What did [EVERY]_F guest bring to the party? (Krifka: 264, ex. 58)

Krifka also shows that while in (9a) the DP can scope over the *wh-phrase*, resulting in the interpretation in (10a), focusing *every* can only interpreted as in (10b).

- (10) a. For every guest x, what did x bring to the party?
b. For which y does it hold that every guest brought y?

We will come back to how the scopal behaviour of quantificational determiners/quantificational DPs as a function of their information status can be structurally captured in Section 3.

Let us now turn to the compatibility between different types of DPs and the information-structural categories of topic and focus.

2.2 Interaction between determiner type and topicalisability/focalisability of the DP

A number of studies have discussed the relation between information-structural categories and different types of DPs. In the case of topicalization, in particular, semantic properties of noun phrases have been taken to play a role. In Givón's (1976) topical hierarchy, for instance, definite noun phrases are more likely to serve as topics than indefinite ones. As observed by Hankamer (1971: 217), some indefinite noun phrases resist syntactic preposing of the type illustrated in (11a), which is considered a topicalization operation. As shown in (11b), definite DPs are usually fine in this position.

- (11) a. *A sandwich, I'll put in my lunch basket.
b. The sandwich, I'll put in my lunch basket.

In a nutshell, Hankamer proposes that a noun phrase can only be topicalized if it was previously evoked in the discourse (in his view "presupposed"). As indefinites are not allowed to take up discourse referents that already exist (Heim 1982), it seems natural that they would be excluded from being topics. The view that (some) indefinite DPs are incompatible with topicalization is also shared by Kuno (1972). According to him, unless they have a stressed quantifier, indefinite DPs express new information that is not compatible with the familiarity required of a topic. However, the situation is somewhat more complicated by the fact that indefinites can also have a specific interpretation. In this case, although they do not refer to discourse-old information, they are referential. Specific indefinites can be topics and even undergo topicalization operations in many languages. (12) illustrates this for Hungarian.

- (12) [Egy bizonyos könyvet]_i háromszor is levett a polcról *t_i*.
A certain book-acc three-times too prt-took the shelf-from
'There was a certain book that (s)he took down from the shelf even three times.'

Example (13), from Prince and Ward (1991: 168) also illustrate the ability of indefinite DPs with a generic reading to be topicalized.

- (13) [Grandpa and Herman are trying to find a buried treasure in their backyard by means of a map. The map refers to an oak tree] Persimmon trees_[TOP] we got. Cypress trees_[TOP] we got. Oak_[TOP] trees we haven't got. (The Munsters, Grandpa)

Examples (12) and (13) illustrate what has been observed, among others, by Firbas (1966), Reinhart (1981) and Davison (1984), that is, that specific and generic indefinite DPs can serve as topics. More recently, Cresti (1995) has argued that the specific reading of indefinite obtains due to their very topical status and Portner (2001, 2002) due to the topical

status of their domain of quantification. So it is not the case that indefiniteness is incompatible with topichood, but rather that the semantics of non-specific indefinites is. It seems that the incompatibility arises because non-specific indefinites do not provide an entity (or kind) that can serve as the subject of predication.

A somewhat related issue, it seems to us, concerns the status of King of France-type noun phrases, i.e. definite noun phrases that do not satisfy the existence presupposition of the definite article. Such noun phrases can lead to truth-value gaps when they are the argument of certain sentences. It has been observed by Strawson (1950) and Reinhart (1981) that if such a noun phrase serves as the topic of the utterance, the truth-value gap is inevitable. Topichood is incompatible with presupposition failure of the definite noun phrase. Again, what we see is that topichood requires a noun phrase with an existing entity (or kind).

Krifka (2016) addresses whether there is a correlation between the type of determiner and a DP's information-structural status. According to him, there is a strong correlation between quantificational determiners and topicality. Typically, a quantificational determiner's restrictor (e.g. *black dice* in *every black dice*) is the set of entities a sentence is about, that is, its topic. So, the example in (14) is a statement about the set of crows.

(14) Every crow is black.

Krifka however notes that the correlation is not perfect, as DPs with a quantificational determiner can also be focused. This is illustrated in example (15).

(15) A: What did the students have to memorize?
B: The students had to memorize [every chemical ELEMENT]_F. (Krifka 2016: 264, ex. 56)

The information-structural status of the DP however has an effect on the quantificational determiner's scope. As noted by Sæbø (1997), and illustrated in (16) and (17), topicalized quantificational DPs scope over focused quantificational DPs.

(16) A: What did the candidates attend?
B: [Several candidates]_{TOP} attended [every MEETING]_F.
"For several candidates it holds that they attended every meeting." (Sæbø: 70, ex. 10b)

(17) A: Who attended the meetings?
B: [Several CANDIDATES]_F attended [every meeting]_{TOP}.
"For every meeting it holds that several candidates attended it." (Sæbø: 70, ex. 11b)

According to Krifka, the scopal behavior of the quantificational DPs in (16) and (17) can be captured in the Cartographic approach to syntactic representation offered by Rizzi (1997), where topical expressions occupy syntactic positions that c-command focused ones. We come back to this point in Section 3.

Work by Frey (2004) and Ebert (2009) (also discussed by Krifka 2016) on the syntactic distribution of DPs with a quantificational determiner in German also indicates that some determiners are more topical than others. Typically, monotone decreasing quantifiers (Szabolcsi 1997) such as *no students*, *few students* and *less than three students* are banned from the German middle field, which according to Frey can only be occupied by topical expressions. In contrast, expressions such as *a student*, *two students*, *several students*, *many students*, *most students* and *every student* are fine in this position while expressions such as *more than three students*, *exactly three students*, *nearly every student* and *more than half of the students* are degraded in this position (we refer the interested reader to Krifka's paper for a possible semantic account in terms of witness set).

To sum up, in this section, we have seen that whereas determiners are not semantically compatible with the information-structural category of topic (as they do not denote entities or sets of entities), they can easily be contrasted with other determiners i.e., be focused. We have also seen that particular determiners do not seem to affect the ability of DPs to be either topicalized or focused. In particular, although certain semantic features, such as indefiniteness, seem hardly compatible with topicalization, indefinite DPs do not generally resist topicalization. Let us now turn to various syntactic treatments of topic and focus and their implication for the information structure of DPs.

3 Syntax of DP-internal topic and focus marking

3.1 The implications of the cartographic treatment of information structure for the DP

Rizzi (1997) proposed that there is evidence from Italian that the left-periphery of the clause contains more than one C-type position. His proposed universal functional sequence for the split CP is given in (18).

$$(18) \quad [_{\text{ForceP}} \text{Force}^0 [_{\text{TopicP}^*} \text{Topic}^{0*} [_{\text{FocusP}} \text{Focus}^0 [_{\text{TopicP}^*} \text{Topic}^{0*} [_{\text{FiniteP}} \text{Finite}^0 [_{\text{IP}}]]]]]]]]$$

He argued that topics can reiterate (as indicated by the star sign), while there is a unique focus position in the left-periphery. Both information-structural positions are sandwiched between functional positions that are responsible for clause-typing and subordination.¹ A crucial underlying assumption of Rizzi's (1997) analysis is the so-called cartographic assumption, namely that each position in the functional hierarchy is associated with a particular semantic (or information structural) contribution. If this assumption was not adhered to, the labels of the positions would be meaningless. In particular, Rizzi (1997) proposed that the meaning component associated with the left-peripheral Topic and Focus positions is that it partitions the clause into Topic and Comment and Focus and Presupposition, respectively (See also Lambrecht 1994, Neeleman et al 2009). He also proposed that this is the reason why there is only one focus position. If there was a second focus, it would by logical necessity have to occur inside the Presupposition of the first focus,

¹ A more elaborate, semantically motivated proposal was put forward by Szabolcsi (1997), where she identifies three pre-verbal positions in the left-periphery of the Hungarian clause that can host a different set of quantificational elements and which have different information structural content. The interested reader is referred to the paper for details.

which is a contradiction². Neeleman et al. (2009) use this information-structural partitioning to account for the generalisation that a peripheral topic is always external to a peripheral focal element. This is because the Comment can contain a Focus and Presupposition, but the Presupposition cannot contain a prominent Topical element.

The idea that there is a parallel between the functional structure of the clause and that of the noun phrase actually predates Rizzi's (1997) proposal for a split CP projection. A proposal that seems a definite precursor to these ideas is Szabolcsi and Laczkó's (1992) analysis of the Hungarian nominal construction. They observed that the possessee in a Hungarian possessive noun phrase always bears person and number agreement with the possessor (see in (19)), analogous to the subject-verb agreement found in many languages. (In fact, in Hungarian, the morphological paradigm for possessor agreement is the same as the verbal agreement paradigm.)

- (19) a. [_{IP} az én kalap-om]
 the I hat-POSS.1SG
 b. [_{IP} a te kalap-od]
 the you hat-POSS.2SG
 c. [_{IP} az ő kalap-ja]
 the (s)he hat-POSS.3SG

They proposed that the agreement is the result of a syntactic agreement relation analogous to the one between subjects and verbs, where the possessor is in some sense in some kind of a subject position in the noun phrase, with the agreement morpheme corresponding to some kind of Infl-type head inside the noun phrase. As expected, the possessor in this case does not bear a case ending, which they argued was because it receives nominative case inside the noun phrase from the Infl-type head. The definite determiner, they argued sits in a higher position, which they identified as a Complementiser-type position within the noun phrase. Their reasoning was that the Specifier of the D-head can act as a kind of escape hatch for the 'subject'-like possessive. The nominative possessive cannot be extracted from the noun phrase in Hungarian, as shown in (20).

- (20) *Péter_i hívtam el [a _t barátját].
 Peter call-PST-1SG PRT the friend-POSS.3SG
 'It is Peter's friend that I called.'

There is, however, an alternative placement for the possessor in the noun phrase, in the [Spec, DP] position, see (21).

² In fact it is not a real contradiction. Focus in the presupposition part of the sentence has a specific meaning, associated with the notion of "second occurrence focus" illustrated in (i) (where capitals indicate the realization of a pitch accent).

(i) (Everyone already knew that Mary only eats vegetables.)
 If even PAUL_F knew that Mary only eats vegetables_F
 (then he should have suggested another restaurant.) (Büring 2013, 73, ex. 1)

The interested reader is referred to Büring (2013) and references therein.

- (21) [_{CP} Péternek a kalap-ja]
Peter-DAT the hat-POSS.3SG

Note that orders like (21) are usually optionally interchangeable with the order in (19). The possessor in this position does not bear nominative, but dative case, indicating that it does not sit in the right configuration to receive nominative from the Infl-type head inside the noun phrase. It is indeed the case, as (22) shows, that dative possessors can be extracted from the noun phrase and moved into a clausal operator-type position, such as focus (22a) or topic (22b).

- (22) a. [_{FocusP} Péternek_i hívtam [_{VP} el t_V [_{DP} a t_i barátját]]]
Peter-DAT call-PST-1SG PRT the friend-POSS.3SG
'It is Peter's friend that I called.'
- b. [_{TopicP} Péternek_i [_{VP} el hívtam [_{DP} a t_i barátját]]]
Peter-DAT PRT call-PST-1SG the friend-POSS.3SG
'As for Peter, I called his friend.'

In this analysis we do not yet see the proposal of a fully-fledged functional hierarchy for information structure inside the noun phrase, but these authors presented arguments for an analysis that involves an Infl-type functional position, which provides a subject-like specifier position and a higher Complementiser-type operator position, whose specifier acts as an escape hatch for material that moves out of the noun phrase into an operator position in the clause.

3.2 Topic and focus positions inside the DP

Given Rizzi's (1997) proposal for a split-C in the clausal domain, the idea of a parallel split D-domain in the nominal phrase then arises naturally. Although a number of languages allow extensive reordering of DP material, there is relatively little systematic empirical and theoretical research on the topic from the perspective of the expression of information structure. Some proposals have however been made in a variety of languages and language families according to which items of the D-domain can be marked for focal and/or topical information-structural status. In this subsection, we give an overview of these proposals.

3.2.1 Morphological realisation of Topic⁰ and Focus⁰

Aboh (2004) argues that Gungbe, a Gbe language spoken in Southern Benin, manifests the right-adjacent topic marker *yà* and the focus marker *wè* if the topic or focus occurs in a left-peripheral position. This is illustrated in (23) for the topic marker *yà*. The order of the fronted constituents is obligatorily Topic preceding Focus, which is reminiscent of Rizzi's (1997) proposed functional sequence for the left periphery. Accordingly, Aboh concludes that the *wè* morpheme is the overt realisation of the Focus-head, while *yà* is the overt realisation of the Topic-head.

- (23) Òn nywèn òò Sétù yà Màrí wè é dà
1SG know that Setu TOP Mary FOC 3SG marry
'I know that, as for Setu, he married Mary'

In addition, Aboh identified a DP-internal question particle *té*, shown in example (24), as an instantiation of a DP-internal Focus⁰-head.

- (24) [DP Távò xòxò té] wè Kòfí xò
 table old Q FOC Kofi buy
 'Which old table did Kofi buy?'

Equally, he proposes that specificity marking on noun phrases in Gungbe is actually topic marking in the nominal domain. In (25), the (a) example contains a definite but non-specific noun phrase, while in the (25b) example, the specificity marker *lɔ́* appears after the noun phrase, rendering it specific, and thus bringing with it 'assumed familiarity' in Prince's (1981) sense.

- (25) a. Sétù nò xò [lɛ̀sì Gúkómè tòn]
 Setu HAB buy [rice Gukome POSS]
 'Setu habitually buys the rice from Gukome'
 b. Sétù nò xò [lɛ̀sì Gúkómè tòn lɔ́]
 Setu HAB buy [rice Gukome POSS Det_[+spec, +def]]
 'Setu habitually buys the aforementioned rice from Gukome' (Aboh 2004: 2, ex. 2)

Gungbe also has a special definite marker for noun phrases with numerals, *lé*. As (26) shows, this marker is present if a definite meaning of the noun phrase involving a numeral is intended.

- (26) Mì sà àkwékwè àtón lé ná mì
 2PL sell banana five NUMB for 1SG
 'Sell me the five bananas.' (Aboh 2004: 5, ex. 9b)

Interestingly, the marker *lé*, is obligatorily present if the specificity marker *lɔ́* is applied. This is illustrated in (27).

- (27) Mì sà àkwékwè àtón lɔ́ *(lé) ná mì
 2PL sell banana five Det_[+spec, +def] NUMB for 1SG
 'Sell me the aforementioned five bananas.' (Aboh 2004: 6, ex. 11)

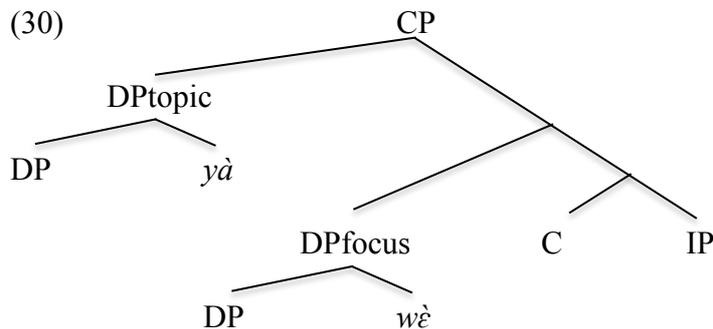
Aboh proposes the structure in (28), with *lé* base-generated as Num⁰ and *lɔ́* base-generated in Top⁰. What he calls the nominal predicate, *àkwékwè àtón*, which consists in the numeral and the noun, moves to [Spec, TopP] via [Spec, NumP] checking relevant features.

- (28) [DP [D0 [TopP [NP àkwékwè àtón] [Top0 lɔ́ [NumP t_{NP} [Num0 lé t_{NP}]]]]]]
 banana five Det_[+spec, +def] NUMB

Aboh brings the following data as evidence for the topical nature of the nominal marker *lɔ́*. As (29a) illustrates, certain non-referential adjuncts are not allowed in the clausal topic position. However, as (29b) shows, if they bear the nominal topic marker *lɔ́*, they then can occupy the clausal topic position. Aboh's claim is that the reason why the NP can occupy this position in (25b) is that it has been rendered topical by the presence of *lɔ́*.

- (29) a. Xò *(lɔ́) kpá yà Kòfí ná zà flén gbáú!
 room DET P TOP Kofi FUT sweep there indeed
 'As for beside the aforementioned room, Kofi will sweep there!'

To sum up, according to Aboh's analysis Gungbe has morphologically overt Topic and Focus-heads both in the clausal spine and inside the topical or focal noun phrase itself. Note however that as Abels (2017: 7 ex. 24) points out this conclusion, although consistent with the above-mentioned empirical facts, is not the only possible syntactic analysis. Equally, it is also possible that the morphemes *yà* and *wè* actually attach to the topical and focal noun phrases, respectively, rather than occupying a position in the clausal spine, as indicated in the tree in (30).



In fact, Abels argues that there are some facts favouring the syntactic analysis that treats the morphemes as NP-internal topic and focus markers. His argument is based on Merchant's (2001: 63) Sluicing-COMP Generalisation which states that in sluicing any material in C under the sluicing remnant must be omitted. He gives the example in (31) to support this claim:

- (31) A: Max has invited someone.
 B: really?! Who (*has)?

Now, this allows Abels to test Aboh's idea that *wè* would occupy a C-type head position. The results of the test, shown in (32), seem to support the idea that the *wè* morpheme is part of the focal noun phrase, rather than a C-type head.

- (32) Ûn sè ɸò Súrù xò mótò amò mǎ nyòn mótò ɸě wè
 1SG hear that Suru buy car but 1SG.NEG know car DET.REL FOC
 'I heard that Suru bought a car but I don't know which car.' (Baltin 2010: 533 ex. 7)

As (32) shows, the focus marker *wè* is retained under sluicing, which suggests that it does not occupy a C-type head position.

A particular syntactic puzzle presents itself for languages with fronted, left-peripheral topics and foci, with prenominal morphological marking. This is because it is not easy to analyse such morphemes as instantiating the Topic⁰ or Focus⁰-head positions, respectively, as the fronted topical and focal noun phrases presumably occupy the [Spec, TopicP] and [Spec, FocusP] positions, respectively. Were the morphological markers instantiations of the Topic⁰

and Focus⁰ heads, they should *follow* the topical and focal noun phrases. One such case of prenominal morphological marking can be illustrated by Maori. As Pearce (1999) showed, Maori has a prenominal topic marker *ko*, and a prenominal focus marker *nā*, appearing in the left-periphery, immediately preceding the fronted topical and focal noun phrases. Both markers are visible in (33).

- (33) Ko te hipi nā Pita i tihore
 ko the sheep n(GEN) Pita T/A fleece
 'As for the sheep it was Pita who fleeced it.' (Pearce 1999: 250, ex. 5b)

Pearce (1999:12) analyses focus markers in Maori as a marker sitting in a peripheral functional position in the extended projection of the noun phrase, such as Kase⁰, akin to case markers. The morpheme is attracted to the clausal [Spec, FocusP] position pied-piping the focal NP with it, as in (34).

- (34) [_{FocusP} [_{KP} Na Pou] [_{FiniteP} i here atu te kuri]]
 Na Pou T/A tie away the dog
 'It was Pou who tied up the dog.'

One argument that the *nā*-marker is in the Kase⁰-position comes from the fact that it can only be used in conjunction with Agent noun phrases. Another is that it shows a morphological alternation depending on the tense of the clause it occurs in. See example (35).

- (35) a. Mā te pirihi mana e kite te tamaiti.
 m(GEN) the policeman T/A find the child
 'It is the policeman that will find the child.' (Pearce 1999: 258, ex. 26b)
 b. Nā te pirihi mana i kite te tamaiti.
 n(GEN) the policeman T/A find the child
 'It was the policeman that found the child.' (Pearce 1999: 257, ex. 24b)

In contrast, *ko* appears to have a wide distribution suggesting that it is not actually a topic-marker, rather a more general complementizer head.

In contrast, Durrleman-Tame (2008: 119) proposes that the exhaustive focus marker *a* in Jamaican Creole, which has a similar prenominal distribution preceding a fronted focal noun phrase sits in the clausal projection line, in a functional position responsible for exhaustive semantics, immediately preceding the focal element in [Spec, FocusP]. This position is illustrated in (36), adapted from Durrleman-Tame (2008: 109).

- (36) [_{ExhaustiveP} A_{Exh0} [_{FocusP} di daag [_{IP} mi bring fi Peter]]]
 a the dog I bring for Peter
 'THE DOG I brought for Peter.'

One of the arguments that supports an analysis where the *a*-marker sits in the clausal spine is that, as shown in (37), it cannot be iterated even if the focal noun phrase is a coordination:

- (37) *A di pikni, a di buk, a di piipl mi no wahn ha

a Det child a Det book a Det people, I Neg want have
 notn muo fi du wid!
 nothing more to do with
 'It's the child, it's the book, it's the people I don't want to have anything
 more to do with!' (Durrleman-Tame 2008: 75, ex. 27)

This stands in contrast with the topic marker *de* which, as shown in (38), can be iterated.

(38) Di pikni de, da buk de, dem piipl de mi no wahn ha
 Dem child Top Dem book Top Dem people Top, I Neg want have
 notn muo fi du wid dem!
 nothing more to do with them
 'As for that child, as for that book, as for those people I don't want to have
 anything more to do with them!' (Durrleman-Tame 2008: 74, ex. 24)

Accordingly, Durrleman-Tame (2008) analyses the topic-marker *de* to be noun phrase internal, while the clausal Topic⁰ is occupied by an empty morpheme.

Another language where the focal marker morpheme is clearly noun phrase internal is Czech. As Kaspar (2016) demonstrates, the discourse marker *že* can appear immediately after a fronted *wh*-phrase, as in (39a), as well as inside the complex *wh*-phrase, as in (39b). Moreover, as (39c) shows it is not possible to analyse (39b) as a split DP, because the position where the *že*-marker sits in (39b) is not a position that is available for DP-splitting.

(39) a. O jak dlouhé knize že si Petr přečetl?
 about how long book že REFL Petr read
 b. O jak že dlouhé knize si Petr přečetl?
 about how že long book REFL Petr read
 c. *O jak si Petr přečetl dlouhé knize ?
 about how REFL Petr read long book
 'How long a book did Peter read about?' (Kaspar 2016: 85-87, exs. 16, 26, 24)

We can see from this illustration that sometimes it requires a detailed syntactic analysis to determine whether a particular topic or focus morpheme occupies a noun-phrase internal position or a position in the left-periphery of the clausal spine. Taken together, the evidence seems to suggest that morphological topic and focus markers tend to be DP-internal, rather than providing an overt realisation of a functional Topic- or Focus-head position in the clausal spine. This might suggest that the correct analyses for them is to assume the presence of a cartographic functional sequence of Topic- and Focus-heads inside the noun phrase too. But recall Rizzi's and related proposals regarding the meaning component associated with the clausal Topic⁰ and Focus⁰ projections. The proposal was that these heads create a Topic-Comment and Focus-Presupposition partitioning of the clause, respectively where the constituents occupying the Specifier positions of the respective phrases are interpreted as topical and focal, and their sister constituents as the Comment and Presupposition. Given these ideas based on information-structural partitioning, one might wonder what the semantic import of a DP-internal topic or focus might be. There is not much work on this, and many of the authors who proposed DP-internal topic or focus positions do not directly address the issue. For Aboh (2004), for instance, the DP-internal

- (41) a. një grua tjetër e bukur
 a woman other the nice
 'another nice woman'
- b. gruaja tjetër e bukur
 woman-the other the nice
 'the other nice woman' (Giusti 1996: 111-112, ex 14,15)

As (42) illustrates, the order of the adjectives is fixed.

- (42) a. *një grua e bukur tjetër
 a woman the nice other
 'another nice woman'
- b. *gruaja e bukur tjetër
 woman-the the nice other
 'the other nice woman' (Giusti 1996: 112, ex 16,17)

In the case of an event nominal, as in (43), the thematic adjective must precede the descriptive adjective, while both are post nominal.

- (43) a. pushtimi i vetëm italian i Shqipërisë
 invasion-the terrible Italian the of-Albania
- b. *pushtimi italian i vetëm i Shqipërisë
 invasion-the Italian the terrible the of-Albania
 'the terrible Italian invasion of Albania' (Giusti 1996: 112, ex 18,19)

But prenominal adjective placement is possible if the adjective is emphasised, although this does not necessarily mean contrastive focusing (Giusti 1996: 112). Capitals indicate emphasis and focus.

- (44) a. një e bukur grua
 a the nice woman
 'a NICE woman'
- b. një tjetër grua
 a other woman
 'ANOTHER woman' (Giusti 1996: 113, ex 20,21)

This holds for definite noun phrases too. Note that, as visible in (45), the enclitic definite article cliticises on the fronted adjective in this case.

- (45) a. e bukura grua
 a nice-the woman
 'the NICE woman'
- b. tjetra grua
 other-the woman
 'the OTHER woman' (Giusti 1996: 113, ex 22,23)

As far as the landing site of the fronted AP is concerned, (46) shows that it must follow demonstratives. This means that the position is lower than [Spec, DP], which Giusti assumes hosts demonstratives.

- (46) a. kjo (shumë) e bukur(a) grua tjetër
 this very the nice-the woman other
 'this very NICE woman'
 b. *e bukur(a) kjo grua
 the nice-the this woman
 'this NICE woman' (Giusti 1996: 114, ex 26)

As to the categories that can undergo this kind of movement, alongside modifying adjectives, she cites genitives, see (47). This, she concludes, supports the idea that the movement is A-bar movement, given that it is not supposed to be category-specific. Although she does not state it explicitly, one would assume that the fronting operation has the effect of emphasising the genitive possessor.

- (47) ky i Benit libër
 this the of-Ben book
 'this book of BEN's ' (Giusti 1996: 114, ex 27)

Giusti proposes a Focus projection above the base-position of the modifying adjectives, and under the D-projection. The position also hosts the enclitic D-head, while the demonstrative sits in [Spec, DP]. She also assumes that the proposed Foc head checks its D-features at LF with the D-projection. The [Spec, FocP] position hosts the fronted modifying adjective.

A FocusP position has also been proposed by Kariaeva (2004), following Androutsopoulou (1995) for the so-called polydefinite construction in Greek. Polydefinites involve an adjective modifying a noun where the noun and the adjective are each accompanied by their own determiner, as in (48).

- (48) a. i asimenia i pena
 the-NOM silver the- NOM pen
 b. i pena i asimenia
 the-NOM pen the-NOM silver

Greek also has 'regular' adjectival modification, however there are several differences between the two (as already noted by Alexiadou & Wilder 1998, and others). First, although in polydefinites the adjective is freely placed either pre- or post-nominally, as shown in (48), monadic definites only allow the adjective in prenominal position, witness (49):

- (49) a. i asimenia pena
 the silver pen
 b. *i pena asimenia
 the pen silver

Second, adjectives in the polydefinite construction are obligatorily interpreted restrictively. In (50) below, from Kolliakou (2004), determiner spreading is disallowed, because it is

impossible to interpret the adjective ‘poisonous’ restrictively with respect to the noun ‘cobras’, since all cobras are poisonous (there are no non-poisonous cobras).

- (50) Idame tis dilitiriodis (#tis) kobres.
 saw.1PL the poisonous the cobras
 ‘We saw the poisonous cobras.’

Kariaeva (2004) offers an analysis in a Rizzi-style split-DP framework (cf. Alexiadou & Wilder 1998, Campos & Stavrou 2004, Lekakou & Szendroi 2012 for alternative accounts) She assumes that the Greek DP is split into a DeicticP and a DP with an additional FocusP sandwiched in between the two as in (51).

- (51) [DeicticP [FocP [DP [NumP [NP]]]]]

She further assumes that AP modifiers can be base-generated at a high (FocP) or low (NumP) functional position within the DP. If an AP modifier is base generated low, it will enter into an agreement relationship with the N in terms of number and gender agreement. However, if a modifier is merged high, i.e. in the FocP above DP, then it has to enter an agreement relation with the DP, so it will show definiteness agreement with the DP alongside gender and number agreement. According to Kariaeva, this gives rise to a phonological copy of the definite article on the modifying adjective. This is how the presence of the extra determiners is accounted for.

Note, however, that Lekakou and Szendroi (2012) argued against treating the adjectival part of the polydefinite construction in Greek as focused. Instead, they proposed, the adjectival part is not obligatorily focused, it is just non-anaphoric, where focus and disanaphora/non-givenness are not treated as two sides of the same coin (Krifka 2006, Reinhart 2006, and also Neeleman & Szendroi 2004, Féry & Samek-Lodovici 2006, Szendroi 2012; contra Schwarzschild 1999, Wagner 2006, 2010).

One argument against a DP-internal focus analysis for the adjective inside the polydefinite construction is that, as noted by Kolliakou (2004: 276), the whole polydefinite itself can have discourse functions other than focus. For instance, in (52), *i mikres i gates* ‘the young the cats’ is most likely a contrastive topic.

- (52) O Yannis taise ta zoa. I mikres i gates itan
 the Yannis fed the animals the young the cats were
 pinasmenes, opos episis ke i megales (i gates).
 hungry, as also and the big the cats
 ‘Yannis fed the animals. The young cats were hungry, and so were the old ones.’
 (Lekakou and Szendroi 2010: 29, ex. 49a)

Also, it can be shown that it is prosodic prominence, whenever present, not polydefinite syntax, that induces the exhaustivity/contrastivity effects usually associated with focus. Compare (53) with (52) above. Once contrastive stress is present, exhaustivity rules out the continuation of the sentence that would contradict that.

- (53) O Yannis taise ta zoa. I MIKRES i gates itan

the Yannis fed the animals the young the cats were
 pinasmenes, #opos episis ke i megales (i gates).
 hungry, as also and the big the cats

‘Yannis fed the animals. The YOUNG cats were hungry, #and so were the old ones.’
 (Lekakou and Szendroi 2010: 29, ex. 49b)

As Lekakou and Szendroi (2010: 29) conclude, what (53) shows is that it is not the polydefinite per se that comes with what has been seen as the hallmark of focus, namely an exhaustive interpretation, since (52) is perfectly well-formed even if it contains a continuation that is incompatible with an exhaustive interpretation. On the other hand, the variant of (52) with stress on the adjective, namely (53), is pragmatically infelicitous because the cancellation of the exhaustive interpretation is at odds with the interpretation forced by stressing the adjective. In other words, it is stress that incurs the effects of focus, and not the polydefinite construction in and of itself.

Another area where a DP-internal focus position has been implicated is noun ellipsis in Dutch, as proposed by Corver and van Koppen (2009). They adapt Merchant's (2001) analysis for ellipsis in the clausal domain to noun ellipsis. The syntactic e-feature is assigned to the head whose complement is elided. There is a requirement that the complement must be e-given, for its content to be recoverable from context. The e-feature also has +Q and +wh-features, making it attracted to [Spec, CP]. Finally, the e-feature instructs the PF component to delete the complement of the null C head. So, in the sluicing example in (54), *what* moves to [Spec, CP], and as the IP complement is semantically recoverable from the first clause, it remains unpronounced.

(54) I know Peter stole something, but I don't know [_{CP} what_i [_C [E] [_{IP} Peter stole what_i.]]]

One difference, however is that the remnant of NP-ellipsis is not necessarily a *wh*-element, but Corver & van Koppen (2009) argue, it is necessarily focused, just like the remnant of sluicing in Hungarian (van Craenenbroeck & Lipták 2006), which also can be a focal element, not just a *wh*-element.

The proposed analysis is given in (55). There is a FocP position under the DP projection, which hosts the remnant of ellipsis, the focal head hosts the adjectival morpheme *-e*, which ensures that its complement is elided.

(55) [_{DP} een_D [_{FocP} zwart -e_{Foc} [_{NP} zwart konijn]]]
 [E]
 “a black rabbit”

Let us now turn to the last section of this paper, where DP-internal focus is seen from a syntax-phonology interface perspective.

4 DP-internal focus and the syntax-phonology interface

Yet another proposal regarding focus inside the DP was proposed by Samek-Lodovici (2010) for Italian, starting out from data originally described in Bernstein (2001). Similarly to

the previous proposals, Samek-Lodovici also argues for a strong parallelism between the focusing possibilities inside the DP and the clause. However, rather than proposing a cartographic split-DP analysis, he follows Zubizarreta (1998) in providing a prosodically-driven account of the data. The crucial data that demonstrates a special word order for DP-internal focus in Italian relies on complex DPs involving both lower adjectives, expressing nationality, colour, shape, and higher adjectives, expressing quality assessment (see Cinque 1994 on modifying adjectival hierarchy). As (56) shows, nouns must precede lower adjectives.

- (56) Q: What did you buy?
 A1: Una macchina FRANCESE.
 a car French
 A2: *Una Francese MACCHINA
 a French car
 'A French car.' (Samek-Lodovici 2010: 804, ex.3)

In contrast, nouns may optionally follow higher adjectives. However, if the DP contains a combination of higher and lower adjectives, only two out of the six logical possible orders are grammatical. As illustrated in (57), the noun may precede both the higher and lower adjective, or as shown in (57), the noun may follow the higher adjective, but only by retaining the N-A order with respect to the lower adjective, essentially pied-piping it.

- (57) Q: What did you buy?
 a. A1: Una macchina Francese SPLENDIDA.
 a car French splendid
 b. A2: Una splendida macchina FRANCESE
 a splendid car French
 'A splendid French car.' (Samek-Lodovici 2010, 805, ex.4)

This optionality holds if the whole DP is focused, as indicated by the context question. If, however, focus falls on the low adjective, the only possible order is the one where the low adjective is DP-final.[1]

- (58) Q: Where is this splendid car from?
 a. A1: *É una macchina FRANCESE splendida.
 is a car French splendid
 b. A2: É una splendida macchina FRANCESE.
 is a splendid car French
 'It is a splendid FRENCH car.' (Samek-Lodovici 2010, 806, ex.6)

This, Samek-Lodovici concludes, is due to the fact that focus in Italian must be aligned to the right-edge of the intonational phrase. The reason for this is that this allows the focus to get main stress. If the focal element is the rightmost phonological word inside the rightmost phonological phrase it will receive main stress without any stress shift operations (see Zubizarreta 1998, cf. Cinque 1993). Similar proposals have been proposed on the clausal level for Italian by Szendrői (2002), Samek-Lodovici (2005, 2015) and others.

Other Romance languages also show a change in word order or a form of doubling within the DP that is tied to the focused status of one of its items. This is illustrated for Spanish in (59) and French in (60), where in both languages the focused determiner seems to align with the right edge of the DP.

- (59) a. *este libro interesante* (Spanish)
this book interesting
'this interesting book'
b. *el libro interesante este*
the book interesting this
'**this** interesting book' (Bernstein 2001, 2, ex. 1b)

- (60) *cette femme intelligente-ci* (French)
this woman intelligent-this
'**this** intelligent woman' (Bernstein 2001, 2, ex. 4b)

As shown in (59), whereas Spanish allows the postnominal position of the demonstrative determiner *este*, this is not an available strategy for its French counterpart *ce/cet/cette*, which can only be prenominal, as in (60). Whenever this determiner is focused, French however resorts to a form of determiner doubling, with the addition of the postnominal reinforcer *-ci* (or *-là*, for the distal version of the determiner). This type of focus-induced doubling is also found at the clausal level when a clitic pronoun is focused. This is illustrated in (61), where the PP containing a full pronoun is only licit in the presence of the clitic and allows focusing its referent.

- (61) Je te parle pas à toi, je lui parle à lui.
I you talk not to you I him talk to him
'I'm not talking to [you]_F, I'm talking to [him]_F.'

The data in (59) to (61) are consistent with what has been shown to happen at the clausal level for instance by Zubizarreta (1998) for Spanish and Hamlaoui (2009, 2011) for (Colloquial) French, that is, that these Romance languages seem to avoid simply shifting stress to the left to associate stress and focus (see however studies such as Hamlaoui et al. 2012 and Vander Klok et al. 2018 that show that a French non-final DP item, such as an adjective, can be made prosodically prominent under focus). Instead, morpho-syntax places the focused determiner (or a reinforcer of it) where stress is neutrally assigned (i.e. the right edge of a phrase)³. Interface-based approaches have in common that they do not necessarily derive this word order through the movement of the focused item itself, in contrast with the cartographic approaches discussed in Section 3. As proposed by Bernstein's (2001), the phrase-final location of the focused determiner can also be derived by means of leftward scrambling (to the highest specifier position below DP) of the unfocused NP and its modifiers, leaving the focused demonstrative rightmost.

³ As a DP containing a focused item does not necessarily align with the right edge of an intonation phase/clause, this naturally raises the question of the level of stress that focus should be associated with to satisfy interface conditions, i.e. main sentence stress (e.g. Reinhart 1995) or (sometimes) phrasal stress only (as in Rooth 1992).

5 Conclusion

We have given an overview of the proposals that have been made as to the expression of focus and topic within the determiner domain, several of which have been framed within the Cartographic approach to the left-periphery. We have tried to evaluate some of these proposals, exploring whether they provide persuasive analyses for the phenomena they discuss and whether they are explicit about what the semantic or pragmatic contribution of the proposed DP-internal information-structurally motivated position is meant to be and how it relates to its clausal equivalent. Just like at the clausal level, it seems that it might be worth exploring whether and how prosody plays a role in strategies such as morphological marking or reordering within DP. Much of the research, it seems, remains to be done.

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