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“Discourse features”, syntactic displacement and the status of contrast

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Abstract

Contrast and its syntactic correlates, various contrastive focus and contrastive topic movements, are investigated from the perspective of a hypothesis constraining the set of formal features active in the computational system (C_{HL}). I propose a Strong Modularity Hypothesis for Discourse Features, according to which no discourse notion can be encoded by formal features. In contrast to currently prevalent cartographic approaches, it claims that only truth-conditional notions may constitute formal features active in the C_{HL} . Movements corresponding to non-truth-conditional notions, such as notions of information structure, must thus be interface phenomena, rather than driven by a feature-checking mechanism. To test this hypothesis, the paper investigates (a) the so-called contrastive *focus movement*, well-known from Hungarian, involving exhaustive identification, and (b) a distinct class of widely attested contrast-related movements – contrastive topic and contrastive focus movements – that involve a closed set whose members are explicit in the context, and have no entailment of exhaustivity. The distinct types of discourse-related, and in particular contrast-related, movements analyzed are argued to be due, respectively, to (a) an independent quantificational operator of the C_{HL} , such as the truth-conditional maximality operator motivated for Hungarian, or (b) interface effects, such as accommodation of nuclear stress assignment or facilitation of the mapping of syntactic representations to information structure.

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1. Introduction

Although contrast is uncontroversially a discourse-relevant phenomenon, that still leaves a range of possibilities open as to its status and relation to linguistic knowledge. There can in principle be three basic kinds of discourse notions distinguished in discussions of the relation between discourse and models of formal grammar. Beyond the subtype that consists of linguistically irrelevant extra-grammatical discourse concepts (such as dialogue, or irony), which are not relevant for the present discussion, there exist a variety of well-studied linguistically relevant discourse concepts, among them the subject of our present discussion, *contrast*, as well as *focus*, *background*, *topic*, *comment*, and others, that in principle may fall into two distinct subtypes according to their status in the model of the language faculty. One, which we can refer to as *type (i) discourse-related linguistic notions*, is relevant only at the interface of

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syntax with the external systems of use. These are linguistic concepts not encoded in the computational system (C_{HL}), i.e., they do not correspond to designated formal features (in the sense of Chomsky, 1995) and functional projections in the syntax. Thus they are involved exclusively in “discourse grammar”, specifically, in the mapping of syntactic structures to information structure representations, and play no role in the C_{HL} deriving formal semantic representations. However, they interact with phenomena of the C_{HL} indirectly, via the interface, as is argued in recent work on interface strategies in the minimalist program (MP) framework, such as Reinhart (1995, 2006), Zubizarreta (1998), Kučerová (2007) and Neeleman and Van de Koot (2008). The other potential subtype of discourse-related concepts, referred to here as *type (ii) discourse-related linguistic notions*, would be syntactically encoded, namely realized in the C_{HL} by particular formal features and their projections. These too are purely discourse-relevant concepts in the sense that they are not active in formal semantic representations, unlike quantificational operators and other truth-conditional entities. However, as they supposedly are notions encoded by formal features and corresponding functional projections in the syntax, *type (ii) discourse notions* are presumed to play a direct role in the syntactic derivation. The existence of such notions is widely assumed in current literature within the prevalent cartographic research program (initiated for the left periphery of clause structure by Rizzi, 1997). They are claimed to participate in feature-checking/agreement phenomena, and thus to directly drive syntactic movements.

Whether both of the above potential subtypes of interaction between purely discourse-related linguistic notions and syntax are actually instantiated by human language phenomena, and if not, which one is, constitute questions of obvious importance for syntactic theory, as well as for the mapping between syntax and information structure. The present paper explores this issue, in light of syntactic phenomena involving the notion of contrast and its relation to commonly assumed notions of focus and topic. It proposes and provides initial motivation for a conceptually desirable hypothesis restricting the set of formal features in the theory – that is, the kinds of features active within the C_{HL} – to be labelled the *Strong Modularity Hypothesis for Discourse Features*. This hypothesis constitutes part of a broader research program, extending beyond the scope of the present study. Its essence is that contrary to the assumption of cartographic approaches, notions of information structure, rather than of formal semantics, cannot be encoded as formal features in the C_{HL} and hence cannot constitute functional projections in the syntax. Thus, it makes the empirical claim that *type (ii) discourse-related notions* referred to above in fact do not exist. This proposed constraint is comparable in spirit to the uncontroversial assumption that phonological features – features whose substance is interpretable only in the PF component – are absent, or at least inaccessible in the C_{HL} , and thus cannot act as features undergoing agreement and driving movement in the derivation. Given the widely held assumption that notions of formal semantic representation vs. notions of information structure can in principle be distinguished in the theory, our proposal makes the following strong empirical prediction: no syntactic movement that appears to realize a purely discourse-relevant notion (the latter further elaborated in section 3) can be driven by a corresponding formal feature encoding it in syntactic structure; rather it arises directly from effects of the interface (in the sense of Reinhart, 1995, and related work).

The paper is organized as follows. After providing some background on the linguistic concept of contrast and its relation to notions of focus and topic (section 2), section 3 introduces the Strong Modularity Hypothesis. Section 4 discusses apparent focus-related movements, paying special attention to a well-known instance of syntactic A-bar movement, the so-called contrastive/identificational focus movement, studied prominently in earlier literature with respect to Hungarian. This syntactic displacement seems to target a designated Focus Position, driven by what has been standardly analyzed cross-linguistically as the discourse feature [focus], projecting a category FP in syntactic structure (see e.g. Brody's, 1990, 1995, widely assumed [focus]-feature checking proposal, as well as Rizzi, 1997, and related work), in apparent contradiction to our Strong Modularity Hypothesis. Upon closer scrutiny of the phenomenon, the alleged [focus]-feature-driven movement is shown to decompose into a quantificational operator with truth-conditional effect and the separate cross-linguistically attested prosody-based and syntactically unencoded discourse notion of focus, commonly referred to as *information focus*. Crucially, the movement is argued to be driven neither by focus (based on Horvath, 1997/2000, 2006) nor by contrast, but by the clearly distinguishable truth-conditional quantificational operator, which interacts with the independent notion of focus only indirectly. Section 5 demonstrates that the movement involves a (phonologically null) exhaustive identification (EI) operator as its driving force, whose semantic import is maximality. The proposed EI operator interacts with focus, a syntactically unencoded (*type (i)*) discourse notion, via association with focus, similarly to overt quantificational elements like *only* or *even*. The postulation of a syntactically encoded [focus] feature and a corresponding F(ocus) projection for the

discourse notion focus as the driving force and landing site of this A-bar movement is thus shown to be on the wrong track. This finding provides striking initial support for our proposed Strong Modularity Hypothesis. Having decomposed the alleged contrastive/identificational focus movement of Hungarian into the purely discourse-related interface phenomenon focus, unencoded in the C_{HL} , and a truth-conditional quantificational element, namely the exhaustivity operator EI that drives the movement, section 6 assesses further instances of contrast in relation to the Strong Modularity Hypothesis, given that some of these too exhibit syntactic movements across languages. Unlike the former case, these constructions typically involve (a) a closed set whose members are explicit in the context, and (b) no entailment of exhaustivity. The section explores whether the syntactic movement correlates of such instances of contrast, namely various contrastive focus and contrastive topic movements (see e.g. Rizzi, 1997; Brunetti, 2003; López, 2006) are also consistent with the Strong Modularity Hypothesis for Discourse Features, or contradict it and support the cartographic approach. First it is shown that contrast per se is non-quantificational, but rather is a purely discourse-related notion. Then we argue that syntactic movements involving contextually anchored and non-exhaustive instances of contrast are in fact interface phenomena, attributable to the mapping onto information structure, and are not due to formal feature-checking within the syntax. This is precisely what is predicted under the Strong Modularity Hypothesis proposed.

2. Background: contrast and notions of focus and topic

Before proceeding, a few brief notes on terminology are in order, starting with what I mean by *contrast* in the present context. As pointed out above, contrast is standardly assumed in the literature to be a notion of information structure that is often marked by linguistic means, such as particular syntactic and/or phonological form. According to its formal and interpretive (pragmatic/semantic) properties, a rich typology and corresponding terminology of contrast got established in the extensive literature on the topic (for an enlightening discussion, see Molnár, 2001). I will abstract away from a variety of finer distinctions debated in the discourse/pragmatics literature, and focus attention only on those properties that are directly relevant for our topic of investigation.

As a starting point, what will be referred to by the term *contrast* in our discussion, is the broad interpretation of this notion, motivated for instance in Vallduví and Vilkuna (1998), with respect to their term *Kontrast*: “. . . if an expression *a* is *kontrastive*, a membership set $M = \{ \dots, a, \dots \}$ is generated and becomes available to semantic computation as some sort of quantificational domain.”

It is worth noting that this view of contrast – also adopted for instance in recent work by López (2006) – subsumes the basic import of focus as conceived in Rooth's alternative semantics (Rooth, 1985, 1992), in the sense that it generates a set of alternatives for the focused constituent. M is considered a set of objects matching *a* in semantic type. Accordingly, contrast, for instance in Rooth's (1985) example *John introduced BILL to Sue*, where *Bill* is contrastive (=focus), generates a membership set $M = \{ \text{Bill, Peter, Steve} \}$, given a particular context (e.g. only individuals that had dinner at John's that night, if the topic of conversation is restricted to this set of individuals). The semantic availability of $M = \{ \dots, a, \dots \}$ for a given contrastive expression *a* allows one to derive alternatives for a proposition $P(a)$ by substituting other members of M for *a* in $P(a)$. The effect of contrast in such examples is seen as (merely) identificational; Rooth (1985) paraphrases it as: “. . . if a proposition of the form *John introduced x to Sue is true*, then *John introduced Bill to Sue is true*.”

The literature on contrast varies as to whether the division of the utterance into two parts, a background domain (predicate) and the set of values for the open slot that generates the alternatives, is only a necessary or also a sufficient condition in the definition of contrast. It is generally agreed that without this partitioning and the resulting membership set generating alternatives, there is no contrast. But under some narrower views, contrast holds only if there is a closed contextually given membership set, i.e., one whose elements are identifiable by the discourse participants (e.g. É. Kiss, 1998). Given that our concern in the present paper is assessing whether, and by what means the linguistic concept of contrast may drive movements in the C_{HL} , it is appropriate for our discussion to assume the above broad, most comprehensive notion of contrast.

As is widely recognized, contrast cross-classifies with the two core notions of information structure, topic and focus. Both topic and focus can manifest contrastive interpretation. Neither of the two is consistently associated with contrast, as shown by non-contrastive, presentational focus (in the sense of Rochemont, 1986), and aboutness topic (in the sense of Reinhart, 1981). This has led researchers to the conclusion that the notion of contrast constitutes an autonomous element of information structure, which co-occurs freely both with focus and topic (as discussed e.g.

in Molnár, 2001). When contrastive, both focus and topic commonly undergo syntactic A-bar movement, namely both contrastive topics and contrastive foci are known to induce movement to the left periphery in a variety of languages, including for instance, Romance, Hungarian, Basque, Greek (for a collection of relevant studies, see É. Kiss, 1995). This immediately raises the question: What are these apparently discourse-related A-bar movements attributable to, and more specifically, can contrast be driving syntactic movements, and if so, how?

Two alternative views suggest themselves. The first approach would involve a mechanical extension of the account of A-movements within the MP framework (see Chomsky, 1995, 2000), that is based on formal features and in particular their uninterpretable instantiations appearing in the syntactic derivation (e.g. phi-features on functional heads like T and *v*, and case on noun phrases), coupled with the mechanism of feature checking, specifically, the Agree mechanism. This is the assumption commonly applied for instance to the A-bar movement of *wh*-interrogatives within the MP framework, based on the postulation of a formal feature [wh]. (Such proposals will be referred to as *feature-checking* or *feature-driven* accounts.) A similar feature-checking account has been proposed in some of the literature also for non-*wh* quantifier phrases (see e.g. Beghelli and Stowell, 1997; Szabolcsi, 1997). Should the same type of syntactic feature-checking account be extended to cover also movements involving discourse-related concepts, such as movements involving the notions of focus, topic and contrast appear to be? The currently dominant cartographic approach to syntax (see e.g. Cinque, 2002; Rizzi, 2004, 2007) maintains this type of proposal. It postulates special formal features and corresponding functional heads designated in clause structure, whose specifier position serves as the unique site for checking/licensing the particular formal feature (Rizzi's *riterial* positions).

The second type of account potentially available for discourse-related A-bar movements, which is clearly distinct from the feature-checking one sketched above, is based directly on properties of the components interfacing with the C_{HL} , such as the information structure component. On this hypothesis, no formal feature encodes the particular notion within the syntactic component; instead, the movements involved are claimed to be induced by needs of the mapping to the relevant interface, in concert with derivational economy. This alternative approach is referred to as a non-feature-driven movement account, or in Reinhart's (1995) terminology, an *interface strategy* hypothesis.

3. A Strong Modularity Hypothesis for Discourse Features

Consider the hypothesis in (1) below, which if tenable, will impose a conceptually desirable strong limitation on the possible kinds of formal features driving movement via checking (feature-valuation) processes in designated functional projections. It specifically excludes the use of "formal" counterparts of discourse-related features commonly assumed for certain A-bar movements in versions of the minimalist framework, in particular on the cartographic approach.

(1) *The Strong Modularity Hypothesis for Discourse Features*

No information structure notions – i.e., purely discourse-related notions – can be encoded in the grammar as formal features; hence no "discourse-related features" are present in the syntactic derivation. They are available only outside the C_{HL} .

According to this Strong Modularity Hypothesis (1), no syntactic displacement can be driven by formal features encoding pure discourse notions (such as (information) focus, topic, comment, givenness), contrary to common current practice in the cartographic tradition. Such purely discourse-related notions can play a role only in information structure representations. Obviously, deriving concrete empirical predictions from this hypothesis presupposes that it is possible to determine what counts as a purely discourse-related notion. What I mean by this term is notions whose interpretation is not actively involved in the formal semantic interpretation of the sentence but only in information structure. Specifically, they are neither truth-conditionally relevant features of lexical items, as e.g. the inflectional features of person or number on nominals, nor quantificational functional elements with truth-conditional effects active in formal semantics, such as generalized quantifiers, known to be non-referential, to exhibit scope interactions and weak crossover effects.

Given (1), it follows that if contrast turned out to be a non-quantificational, non-truth-conditional notion, intrinsic to the information structure module, then it cannot involve feature-driven movement. Whatever linguistic phenomena appear to realize contrast in various languages, among them syntactic displacement, correlate with

it due to the discourse module interfacing with the C_{HL} , but without contrast itself being a formal feature in the C_{HL} .

Below we turn to an initial major challenge to the empirical tenability of the Strong Modularity Hypothesis (1) posed by some well-known syntactic displacements commonly referred to as *focus movements*. Concentrating in particular on the case of (alleged) contrastive/identificational focus movement instantiated in Hungarian, we argue that contrary to appearances, this movement in fact need not and should not be attributed to a discourse notion, neither focus nor contrast, and thus it motivates no formal feature encoding of either of these notions.

4. Discourse-related movements: focus and alleged focus movements

4.1. Narrow/contrastive vs. projecting/information focus: two types of focus?

A commonly used definition of focus, originating in Jackendoff's work (1972), is in terms of discourse presupposition, also referred to as *background*. Focus is taken to be the non-presupposed, new information part of the sentence, i.e., information not shared by the speaker and the hearer at the point in the discourse where the sentence is uttered. This notion of focus is often referred to as *information focus*. It does not necessarily involve a partitioning of the sentence into background vs. focus, rather, in the case of "out-of-the-blue" contexts, the whole sentence can constitute focus. At the same time, a further type of focus has been widely recognized, referred to as *contrastive* or *identificational focus* (see Rochemont, 1986; É. Kiss, 1998). This distinction between two major subtypes of focus is based on observations of distinct kinds of discourse contexts they occur in, and sometimes distinct semantic properties and syntactic realizations they exhibit. Importantly, however, in both of these purportedly different cases, the focus constituent is marked by prosodic prominence (it bears main stress or pitch accent). Studies of focus phenomena in Germanic and Romance by Reinhart (1995) and Zubizarreta (1998) yielded novel evidence in favor of the view that focus is a uniform, purely interface notion, and specifically, that the interface of the C_{HL} with information structure is mediated via sentential stress.

Inspired by Chomsky's (1971) view of focus, Reinhart (1995) advances an updated account of focus as a uniform syntactically unencoded, stress-based notion, that makes use of the Stress-Focus Correspondence Principle (2) and her independently motivated notion of interface economy (see also Fox, 1995).

- (2) *The Stress-Focus Correspondence Principle (SFCP)*
(adapted from Reinhart, 1995)

The focus set of a clause consists of the constituents containing the main stress of the clause.

A dichotomy commonly observed regarding the prosody-focus relation, which *prima facie* is problematic for the general applicability of the SFCP, is between wide/projecting focus and narrow focus (see Selkirk's, 1984 focus projection conventions). Narrow focus, shown in (4), is commonly claimed to correlate with contrastive function, as opposed to new information focus, shown in (3). While sentence (3) permits three alternative focus options, as expected under the SFCP, (4) is appropriate only for a context where the verb is the focus. It fails to permit VP or IP focus, even though both of these constituents contain the main stress of the clause. (Words carrying main stress are capitalized, and focus constituents – as identified by the context question – are marked by bracketing.)

- (3) a. Q: What's this noise?
[My neighbor is building A DESK]
b. Q: What's your neighbor doing?
My neighbor is [building A DESK]
c. Q: What's your neighbor building?
My neighbor is building [A DESK]
- (4) Q: Has your neighbor bought a desk already?
My neighbor is [BUILDING] a desk
cf.
Q: What's this noise? / What's your neighbor doing?
#[My neighbor is [BUILDING a desk]]

- (b) constituents are not moved in order to become the focus of the sentence; rather the operations remove constituents from the domain of stress-assignment, and thus in effect create focus on some other element in situ, or alternatively, serve to achieve anaphoric destressing of the moved element

These properties set focus-accommodating movements apart from the other major type of (alleged) focus-related movements: syntactic movements to a unique designated structural focus position, attributed to languages like Hungarian or Basque (for further instances, see É. Kiss, 1995). It is this latter type of focus-related movement that will be referred to henceforth by the pretheoretical term *focus movement*.

Such (apparent) focus movements – in contrast to focus-accommodating p-movements – are uniformly A-bar movements, and are commonly conceived of as required for the licensing of focus constituents in a designated Spec position, or in MP terms, checking a formal [focus] feature on a functional head F⁰ (see (8)).

(8) *Properties of 'Focus Movement'*

- (a) the moved phrase – or one of its constituents – gets interpreted as the focus of the clause it appears in
- (b) exhibits long, successive cyclic, extraction
- (c) obeys the complex-NP and other syntactic island constraints
- (d) licenses parasitic gaps

Each of these syntactic properties of focus movement are well-documented in the literature for the case of Hungarian (see e.g. É. Kiss, 1987, 1998; Horvath, 1986, 2000). Due to space limitations, we will only give an example of Hungarian focus movement here. The unique landing site of the movement is easy to diagnose, due to the V-raising it triggers, which yields a verb–particle order, instead of the normal particle–verb order (cf. (9)-(10a,b)).

- (9) Bemutattam Jánost az unokahúgomnak.
 in-showed-1SG John-ACC the niece-my-DAT
 'I introduced John to my niece.'

(10) Clause-Internal 'Focus Movement'¹

Q: Kinek mutattad be Jánost?

'To whom did you introduce John?'

- a. [AZ UNOKAHÚGOMNAK] mutattam be Jánost *t*.
 the niece-my-DAT showed-1SG in John-ACC
 'I introduced John TO MY NIECE.'
- b. *AZ UNOKAHÚGOMNAK bemutattam Jánost *t*.
 the niece-my-DAT in-showed-1SG John-ACC

The syntactic characteristics listed in (8) make focus movement fully analogous to *wh*-movement as attested in the English-type languages. Accordingly, it was proposed (Horvath, 1986, 1995; Brody, 1990, 1995), and has become standard analysis, to integrate focus movement with cases of known feature-driven movements, via a syntactic feature [focus]. The postulation of a syntactically active formal feature [focus] universally, for all cases of focus, was descriptively appealing since (a) it could solve the problem inherent in the T-model of mediating between the prosodic aspect of focus (stress-placement) and focus interpretation of the corresponding constituent, and (b) at the same time, it could also serve as the driving force for the overt syntactic movement of the focus constituent in the Hungarian-type languages, thus capturing properties it shared with other feature-driven movements. But this [focus]-feature-based approach entailed the syntactic encoding of the notion of focus in the C_{HL}, in contrast to the interface-based conception discussed above, and in direct contradiction to our Strong Modularity Hypothesis (1).

¹ The status of examples manifesting in situ focus will be discussed in section 4.3.3.

4.3. Evidence against the [focus]-based account of Hungarian 'focus movement'

Let us take a closer look at the case of the alleged focus movement of Hungarian, which has been taken to provide the strongest type of case in favor of encoding focus by the formal feature [focus] and a corresponding functional projection in the syntax. Relying on findings reported in Horvath (2000, 2006), we argue below that the syntactic encoding of focus in fact is inadequate as well as unnecessary for this case. This is just what is expected under the Strong Modularity Hypothesis (1).

4.3.1. Pied-piping evidence: Agree and a [focus] feature within the goal?

Initial indication that [focus] may not be a formal feature driving movement similarly to [wh] or [neg] features is provided by some well-established pied-piping generalizations of earlier literature (for a discussion of the latter, see e.g. Weibelhuth, 1992; Horvath, 2005). Assuming the movement mechanism of the MP framework, phrasal movements that involve a formal feature-matching relation (Agree) with some probe, are expected to manifest uniform positions for the feature-bearing subelement within the moved phrase, i.e., they are expected (other things being equal) to display the same pied-piping behavior.² Thus, if [focus] indeed acts in the C_{HL} as a formal feature, it can be expected to induce movement of the phrase in which it occurs the same way as other operator features do. However, while features such as [wh] and [neg] are arguably constrained in a parallel manner with regard to their possible positions in the corresponding phrase undergoing movement (see (11), (12) and (13)–(15)), the same limitations systematically fail to hold for [focus] under the alleged focus movement (as will be shown in (16)–(19) below).

(11) English *Wh*-interrogatives³

- a. I wonder {*which* stories/*whose* behavior} Mary disliked.
- b. *?I wonder stories about *whose* behavior Mary disliked.

(12) Hungarian relatives

- a. a filmszínésznő [[*akinek* a képét] ellopták *t*] ...
the movie-actress who-DAT the picture-hers-ACC away-stole-3PL
'the movie-star whose picture they stole...'
 - b. *a filmszínésznő [[*néhány akiről* írt könyvet] láttam *t*
the movie-actress some whom-about written book-ACC saw-1SG
a polcon] ...
the shelf-on
'the movie-star a few books written about whom I saw on the shelf...'
- cf.
- Láttam *néhány Marilyn Monroeről* írt könyvet a polcon.
saw-1SG some M. M.-about written book-ACC the shelf-on
'I saw a few books written about Marilyn Monroe on the shelf.'

The unacceptability of (11b) and (12b) indicates that the position of the relevant feature within the phrase may determine whether it can or cannot get pied-piped, and the contrast between the (a) and the (b) versions specifically suggests the hypothesis that a phrase may get moved if the relevant feature occurs on its Spec('s Spec), or on its head, but not if it occurs on a complement or an adjunct of the phrase. That this constraint is not simply some idiosyncratic property limited to the [wh] feature (or the *wh*-morpheme) is indicated by parallel evidence from polarity/negative-inversion and the feature [neg] in English (13)–(15). The pair (14a,b) shows that the DP can move when the [neg]-bearing morpheme occurs in its Spec but not when it occurs in the complement position; the contrast in (15) shows that when the head of a phrase carries [neg], the whole DP can move, but when the [neg] feature is in the complement, the DP cannot move.

² *Pied-piping* is meant here merely as a shorthand for the relation between the position of the element bearing the feature targeted by Agree and the particular phrase containing it that ends up moving, thus satisfying the EPP feature of the probe.

³ On accounts of some apparent discrepancies in the pied-piping options of English *wh*-relatives, see Emonds (1976), Weibelhuth (1992), Horvath (2005).

- (13) a. Never have I witnessed such behavior.
 b. No student's thesis have they read so thoroughly.
- (14) a. [No young girl]'s participation in the game can they permit.
 b. *the participation [of no young girl] in the game can they permit.
- (15) a. No articles by such a reporter will they agree to publish.
 b. *Such articles [by no reporter] will they agree to publish.

Observe now the purported [focus]-driven movement in (17) and (19). There is a clear discrepancy between the systematic freedom of apparent pied piping by the alleged [focus]-feature-bearing items and the restricted pied-piping options by [wh], [neg], and other established formal-feature-bearing items.

- (16) *a filmszínésznő [[néhány akiról írt könyvet] láttam t a polcon]
 the movie-actress some whom-about written book-ACC saw-1SG the shelf-on
 'the movie-star a few books written about whom I saw on the shelf ...'
 vs.
- (17) [Néhány MARILYN MONROERÓL írt könyvet] láttam t a polcon.
 some M. M.-about written book-ACC saw-1SG the shelf-on
 'It's a few books written about MARILYN MONROE that I saw on the shelf.'
- (18) *az ital [[amit követelő vendégektől] fél a pincer t] ...
 the drink which-ACC demanding guests-from fear-3SG the waiter-NOM
 'the drink customers demanding which the waiter is afraid of ...'
 vs.
- (19) [BARACKPÁLINKÁT követelő vendégektől] fél a pincer t.
 apricot-brandy-ACC demanding guests-from fear-3SG the waiter-NOM
 'It's customers demanding APRICOT BRANDY that the waiter is afraid of.'

These pied-piping contrasts suggest that the movement in the focus cases is unlikely to be based on an Agree relation involving the alleged formal feature [focus], borne by the capitalized elements. If there was a feature [focus] active in focus movement, the positions it occupies within the moved phrase in (17) and (19) would not permit movement, as shown by the structurally parallel *wh*-phrases of (16) and (18) (and also by the movement data (11), (12) and (14), (15)). But contrary to this prediction of the [focus]-feature-based account, focus movement in (17), (19) and other relevant test cases, is perfectly grammatical.

Note that the above striking difference cannot be easily dismissed as irrelevant, attributing it to other factors. For instance, one cannot simply point to the extensive freedom of pied-piping observed in the case of *wh*-movement in English non-restrictive relatives and conclude that no systematic restrictions hold for pied-piping and hence no argument can be based on it. In fact the latter pied-piping phenomenon – exemplified by Ross's classic *the reports, the height of the lettering on the covers of which...*—is limited to a particular construction where the *wh*-morpheme arguably functions as an indexical pronoun rather than an operator feature (see [Webelhuth, 1992](#)). Moreover, this phenomenon is (a) language-specific, occurring neither in other Germanic languages nor in Hungarian and (b) stylistically marked, unlike the cases that do observe the pied-piping generalization. Importantly, none of these properties hold in the case of focus movement: it seems to disobey the above pied-piping generalizations uniformly across languages, and induces no stylistic or any other special effects.

Neither can one plausibly attribute the uniquely free pied-piping behavior of the alleged [focus] feature to this feature differing from [wh] and other formal features in having the ability to project up to a containing phrasal node. Focus has been claimed in earlier literature to project but as shown already by [Selkirk \(1984\)](#), and as attested also with respect to Hungarian, no focus projection is possible from adjuncts. Crucially, stress-bearing adjuncts can clearly constitute the focus within focus-moved phrases (as in (17)); thus, adjuncts with [focus] would have to be able to pied-pipe their phrase even though they demonstrably fail to project focus to the same phrase.

In sum, focus movement takes place irrespective of the structural position of the [focus]-carrying element, that is, irrespective of the position of the semantic and prosodic focus within the moved phrase. This suggests that a feature [focus] – even if one decided to retain it, as a means of encoding the prosody-semantics correlation – is not what enters the Agree relation in the derivation and determines the phrase undergoing focus movement.

Let us turn next to properties of focus movement that involve the substance of the alleged [focus] feature. The findings presented in sections 4.3.2 and 4.3.3 below suggest that this so-called focus movement in fact cannot be attributed to focus at all. They furthermore point towards an alternative account of focus movement.

4.3.2. Evidence from focus-sensitive particles: *only* vs. *even*

Only and *even* are known to be elements involving association with focus (see Jackendoff, 1972; Rooth, 1985). Both of these focus-sensitive particles require a focus constituent within their c-command domain. Given this, contrast the Hungarian counterpart of *only*, *csak* in (20) with the Hungarian counterpart of *even*, *még . . . is* (lit. ‘yet . . . also’) in (21).

- (20) a. Mari csak [A FOGADÁSRÓL] késett el.
Mary-NOM only the reception-from late-was away
'Mary was late only for THE RECEPTION.'
- b. *Mari elkésett csak [A FOGADÁSRÓL].
Mary-NOM away-late-was only the reception-from
- c. *Mari csak [A FOGADÁSRÓL] elkésett.
Mary-NOM only the reception-from away-late-was
- d. *Mari csak elkésett [A FOGADÁSRÓL].
Mary-NOM only away-late-was the reception-from
- (21) a. Mari elkésett még [AZ ESKÜVŐJÉRŐL] is.
Mary-NOM away-late-was yet the wedding-her-from also
'Mary was late even for HER WEDDING.'
- b. Mari még [AZ ESKÜVŐJÉRŐL] is elkésett.
Mary-NOM yet the wedding-her-from also away-late-was
'Mary was late even for HER WEDDING.'
- c. *Mari még [AZ ESKÜVŐJÉRŐL] is késett el.
Mary-NOM yet the wedding-her-from also late-was away

The behavior of *only* in (20) is consistent with the common assumption that the licensing of focus in Hungarian is dependent on overt focus movement, since the constituent associated with *csak* (‘only’) is obligatorily preposed, and necessarily exhibits the V–particle order, diagnostic of focus movement ((20a) vs. (20c)). But this case contrasts in an unexpected way with the behavior of *even* phrases in the language, see (21). The grammatical examples (21a,b) involve no focus movement, as shown by the post-V position of the focus constituent associated with *még . . . is* (‘even’) in (21a), and the particle–V order, in (21b). Since *even*, as *only*, requires association with focus, (21a,b) contradict the claim that focus of a post-V constituent in Hungarian necessarily involves movement to a left-peripheral Spec, FP position. More importantly, in spite of *even* being a focus sensitive particle, focus movement of the phrase it associates with is actually prohibited, see (21c). Clearly, any account attributing focus movement to the presence of a Focus phrase is unable to predict the above contrast, and in particular, would wrongly predict focus movement to be attested in cases like (21).

4.3.3. Focus movement vs. *in situ* focus

The split attested between the focus-sensitive particles *only* vs. *even* with respect to focus movement becomes less puzzling when we take a closer look at this movement in light of a standard test for identifying focus: *wh*-question and answer pairs. Answers to *wh*-questions in Hungarian normally exhibit the phrase which corresponds to the variable bound by the *wh*-operator in the focus position left-adjacent to V, suggesting that the phrase interpreted as the focus in the answer has undergone focus movement (as e.g. in (10)). But consider the kind of *wh*-question and answer pairs shown in (22) and (23).

- (22) Q: Hol tudhatnám meg a vonatok menetrendjét?
 where know-can-COND-1SG PERF.PRT the trains' schedule-POSS-ACC
 'Where could I find out about the train schedule?'
 A: Megtudhatod (például) AZ INTERNETEN
 PERF.PRT-know-can-2SG for example the internet-on
 (vagy TELEFONON is).
 or phone-on also
 'You could find out about it (for example) on the internet (or also by phone).'
- (23) Q: Kiket hívott már meg Anna?
 who-PL-ACC invited-3SG already PERF.PRT Anna-NOM
 'Who has Anna (already) invited?'
 A: (Valószínűleg) meghívta KATIT ÉS PÉTERT,
 probably PERF.PRT-invited-3SG Cathy-ACC and Peter-ACC
 és talán MARIT is.
 and perhaps Mary-ACC also
 '(Probably) she has invited Cathy and Peter, and perhaps also Mary.'

The data show that in some cases, the language has answers to *wh*-questions that do not undergo focus movement, in spite of the relevant constituent of the answer clearly being the focus of the sentence. Moreover, the cases of focus with vs. without focus movement are not random. So what distinguishes the above in situ (post-V) focus answers from the “standard” type of answers which undergo overt focus movement?

The relevant distinction has been observed to involve the exhaustive identification of the particular subset of the contextually relevant set of alternatives for which the predicate holds (Kenesei, 1986; É. Kiss, 1998; Horvath, 1997/2000). Examples with focus movement (like (10a) and (20a)) exhibit exhaustive identification, as opposed to the post-V focus cases (22) and (23), which manifest the absence of exhaustive identification; in the latter, we have only a partial, non-exhaustive identification of members of the subset for which the predicate holds. When it is explicit that there is no need or possibility for exhaustive specification in the answer within a question-answer pair – due to the pragmatics of the situation, such as sufficiency of supplying one instance of the relevant subset of values (22), or due to the inability to supply the full subset (23) (usually indicated overtly) – then no preposing of the focus phrase is appropriate in the answer.

Given this descriptive semantic generalization, the contrast between *only* sentences, such as (20), and *even* sentences, such as (21) in section 4.3.2, follows straightforwardly. The meaning of (exclusive) *only* entails exhaustivity, i.e., maximality, of the subset identified as satisfying the existential presupposition, while *even* clearly does not.

In sum, the contrasts noted between moved vs. in situ focus constituents in (20) vs. (21) and in (10) vs. (22), (23) provide further indication that what drives the A-bar movement – namely, the alleged focus movement shown in (10) and (20) – must be something other than focus.

4.4. A dichotomy of information focus vs. identificational focus?

In view of the movement vs. in situ alternation of focus in Hungarian, some studies, such as É. Kiss (1998) and Kenesei (2006), conclude that there are two semantically distinct kinds of focus to be recognized in the theory, which can be instantiated simultaneously in particular languages. Using É. Kiss's (1998) terminology, the two subtypes postulated are: (a) non-exhaustive information focus – expressing new information without excluding all other members of the set of alternatives – which is syntactically manifested as in situ focus in Hungarian as well, and (b) necessarily exhaustive identificational focus, which correlates with overt A-bar movement to the designated focus (Spec of FP) position in Hungarian.⁴ But is it justified to incorporate into the theory a dichotomy splitting the notion of focus into two distinct

⁴ The terms *identificational* and *contrastive* focus are often used interchangeably in the literature to designate cases involving focus movement, and to set them apart from information focus. What is relevant for us in the text is that *identificational* is a term meant by É. Kiss (1998) similarly to Kenesei's (2006) *contrastive*, as the basis for distinguishing focus that involves movement from in situ information focus. (É. Kiss (1998) regards as contrastive focus only a particular subtype of her identificational foci, namely, only those involving a closed set whose elements are known to the discourse participants.)

types with respect to performing “identification”? And would this proposal provide an adequate way to derive the correlation of the purported varieties of focus with the presence/absence of the observed movement?

To start with, Kenesei (2006) points out that being “identificational” is not a property distinguishing new information focus from focus that induces focus movement. He argues that information focus is identificational too; even when the answer to a *wh*-question involves no exhaustivity, and no contrast, as in our (22) and (23) above, we still have identificational focus.⁵ Although it is interpreted with no reference to a set, the answer in such information focus cases too identifies an entity, one that satisfies the variable in the interpretation of the corresponding *wh*-question. Kenesei concludes that being identificational thus fails to draw the needed distinction between information focus on the one hand and the kind of focus that induces the Hungarian-type focus movement on the other. Instead, the latter should be referred to as *contrastive focus*; henceforth we adopt Kenesei’s terminology for the two subtypes of focus assumed in these studies. Crucially, information focus is not contrastive in the sense of involving a membership set some elements of which get excluded by the identification of other members for which the predicate holds.

While descriptively the above dichotomy seems valid, it is an open question whether the relevant distinctions should be captured by directly incorporating these two versions of the notion focus into the theory. A related more specific question, crucial for our present discussion, is: What in the descriptive notion of contrastive focus correlates with, and may thus be inducing, focus movement?

Contrastive focus always involves a membership set. This can reasonably be attributed to the notion of contrast (on the latter, see Vallduví and Vilkuňa, 1998). Thus, given that both types of focus involve identification, contrastive focus comprises (a) identification (a correlate of focus, no matter whether the information or the contrastive variety) and (b) a membership set being invoked (a correlate of contrast), which provides a domain for the identification operation. In order to see what ingredient of contrastive focus the movement might be attributed to, let us consider each of the above in turn.

The identificational aspect of contrastive focus, which it shares with information focus, obviously cannot be what drives focus movement. The reason is that as shown in sections 4.3.2 and 4.3.3, information focus (non-contrastive identificational focus), fails to undergo the alleged focus movement. Is it then the other ingredient of contrastive focus, namely, the notion of contrast, that drives focus movement?

4.5. Is ‘focus movement’ driven by contrast?

Contrast, as manifested in the case of contrastive focus, means the existence of a membership set of relevant elements that identification operates on, identifying a proper subset for which the predicate holds, while excluding other members of the set. Now if contrast per se were what drives the apparent focus movement under discussion, then we would expect constituents with a contrastive interpretation to uniformly undergo movement to the same position as do constituents under focus movement. But this turns out not to be the case. Consider examples such as (24). (24) involves contrast – i.e., invokes a membership set – for the subject as well as the object (in italics), yet, neither of these contrastive phrases appear in the position known to be the landing site of focus movement; note in particular the pre-verbal position of the particle *el* (‘away’) in (24).

- (24) Context: Tudod mit loptak el az osztálytársaidtól
 know-2sg what-ACC stole-3pl away the class-mates-yours-from
 a tornateremben?
 the gym-in?

'Do you know what they stole from your classmates in the gym?'

Mari elvesztette az óráját, *János* (elvesztette)

Mary away-lost-3sg the watch-her-ACC John away-lost-3sg

a pénztárcáját,...

the wallet-his-ACC

'Mary lost her watch, John (lost) his wallet, ...'

⁵ I owe this point regarding the interpretation of “identificational” to an anonymous reviewer.

Neither the subject nor the object has undergone focus movement, although both are contrastive. More generally, it is well-known that contrast appears not only combined with focus, but also with topic cross-linguistically (see Büring, 1997; É. Kiss, 1998; Molnár's, 2001, claim that contrast is an autonomous notion of information structure). In section 6, we turn to the issue of whether movements to the left periphery exhibited by certain contrastive phrases across languages are driven by a formal feature [contrast], and if not, how they arise. What is relevant here for our discussion of focus movement is that being contrastive does not entail that the phrase must, or even can, appear in the landing site of focus movement, as in (24). Thus contrast cannot be the feature driving the latter movement. Instead, as elaborated below, there is another, clearly distinct, semantic property that underlies the application of focus movement.

Summing up our conclusions so far, the alleged focus movement cannot be driven by either of the two obvious ingredients that comprise contrastive focus. Neither a feature corresponding to focus/identification (see sections 4.3 and 4.4) nor a feature corresponding to contrast per se can be regarded as proper triggers for the attested movement. It is reasonable then to explore the existence of a further property manifested by the construction, which correlates systematically with this movement and may constitute a formal feature active in the C_{HL} .

5. An E(xhaustive) I(dentification) operator: decomposing Hungarian 'focus movement'

The semantics of focus movement of Hungarian has been known to have the import of exhaustivity. The identification operation performed on the relevant membership set, crucially, identifies the exhaustive, i.e., maximal, proper subset of this set for which the predicate holds (see Szabolcsi, 1981; Kenesei, 1986). The evidence we discussed in section 4.3.2 (the position of phrases associated with *only* vs. *even*) and in section 4.3.3 (the interpretive difference between answers with *in situ* vs. focus-moved phrases) confirmed that what correlates with the so-called focus movement is in fact an exhaustive identification operation.

The import of exhaustivity (maximality) occurring with focus movement is neither an automatic concomitant of focus/identification – given the clearly non-exhaustive information focus (as in (21), (22), (23)) – nor of contrast, which picks non-exhaustive proper subsets from the relevant membership set, for instance, in the case of contrastive topics. Thus the exhaustivity manifested is an autonomous property of the construction, and if so, it may well be realized by an independent grammatical element.

Consider then capturing this generalization directly by assuming a (phonologically null) quantificational *Exhaustive Identification* operator with the semantic import of maximality, henceforth *EI-Op*. Specifically, let us explore the hypothesis that the apparent focus movement is due to this quantificational operator (following my earlier proposal in Horvath, 1997/2000), and focus plays no role in driving the movement:

(25) So-called focus movement (as instantiated in Hungarian) is actually EI-Op(erator) movement.

The proposal claims that it is the quantificational notion of exhaustive identification that is encoded and active in the syntax. Focus is separate from the exhaustive identification operation; it may occur with or without associating with the EI operator, just like it may or may not occur associating with any familiar overt focus-sensitive operator. In the absence of a *c*-commanding EI operator (or some other focus-sensitive operator), the sentence is interpreted as involving plain (*in situ*) information focus, and is, for obvious reasons, non-exhaustive. When focus occurs associating with – *c*-commanded by – an EI operator, the resulting interpretation is what earlier literature has considered as (exhaustive) identificational/contrastive focus.

Recall now that our Strong Modularity Hypothesis (1) in section 3 claims that formal features of the C_{HL} that can drive movement necessarily correspond to truth-conditionally relevant notions. Thus, before presenting the syntactic aspects of the EI-Op-based proposal, an immediate question for the Strong Modularity Hypothesis needs to be addressed: Is the EI-Op – the entity claimed to be driving the movement under discussion – indeed truth-conditional, as expected under hypothesis (1), or is the exhaustivity property observed merely due to an implicature?

5.1. Exhaustive identification in the C_{HL} : truth-conditional effects of Hungarian 'focus movement'

As noted first by Szabolcsi (1981), Hungarian focus movement in fact manifests truth-conditional effects. Its exhaustiveness import is not merely an implicature as it cannot be cancelled, see (27A–B'). The data in (26) and (27) contrast in this respect with the corresponding English *in situ* focus sentences manifesting no parallel truth-conditional effects, see (28) and (29).

- (26) Context Q: 'Who did they call up?'
 a. [JÁNOST ÉS MARIT] hívták fel.
 John-ACC and Mary-ACC called-3PL up
 'They called up JOHN AND MARY.'
 b. [JÁNOST] hívták fel.
 John-ACC called-3PL up
 'They called up JOHN.'

(26b) in Hungarian is not a logical consequence of (26a). Beyond entailing that 'they called up John', (26b) also entails that they called up nobody else (exhaustiveness). This is also demonstrated by the following discourse fragment:

- (27) Q: 'Who did they call up?'
 Speaker A: [JÁNOST] hívták fel.
 John-ACC called-3PL up
 'They called up JOHN.'
 Speaker B: Nem igaz. MARIT is felhívták.
 not true Mary-ACC also up-called-3PL
 'Not true. They also called up MARY.'
 Compare:
 B': # Igen. És (felhívták) MARIT is.
 yes and up-called-3PL MARY-ACC also
 'Yes. And (they called up) MARY too.'

What is denied in (27) by Speaker B is precisely the exhaustiveness of the identification of the subset, namely, *Jánost* ('John') in the sentence of Speaker A (cf. the infelicity of the non-denied version B'). In contrast, in the corresponding English data, (28b) is a logical consequence of (28a), and the discourse in (29) is semantically infelicitous:

- (28) Q: Who did they call up?
 a. They called up JOHN AND MARY.
 b. They called up JOHN.
 (29) Q: Who did they call up?
 Speaker A: They called up JOHN.
 Speaker B: #Not true. They also called up MARY.

The denial in (29B) is inappropriate, as the assertion of Speaker A does not entail that they called up no one else. Speaker A's answer, with *John* as focus, implicates exhaustiveness, but does not involve semantic (truth-conditional) exhaustive identification.

Further evidence reinforcing our claim that preposing to the alleged focus position involves a truth-conditional notion of exhaustivity, rather than a discourse notion focus with a conversational implicature of exhaustivity, is provided by the contrast between (30a) vs. (30b). In (30b), the import of exhaustivity of the preposed *három cikket* ('three articles') cannot be cancelled, as shown by the infelicity of the full version of (30b).

- (30) Context: discussing whether John met certain requirements for promotion:
 a. János tavaly megjelentetett három
 John last-year PERF.PRT-appear-CAUS-PAST-3SG three
cikket, (tulajdonképpen úgy tudom, ötöt).
 articles-ACC actually so know-1SG five-ACC
 'Last year John published three articles, (actually, as far as I know, five).'
 b. János tavaly HÁROM CIKKET jelentetett
 John last-year three articles-ACC appear-CAUS-PAST-3SG
 meg, #(tulajdonképpen úgy tudom, ötöt).
 PERF.PRT actually so know-1SG five-ACC
 'Last year John published all and only THREE ARTICLES, (#actually, as far as I know, five).'

The interpretation of the EI operator I propose thus has the semantic import that there is no other member of the set of contextually relevant alternatives that the predicate holds for.

The notion of exhaustive identification involved has an additional property (observed by Kenesei, 1986): there must be at least one member in the contextually relevant set of alternatives that the predicate does not apply to. In other words, the operation attributed to EI crucially involves exclusion of a complementary subset. (Whether the elements of this complementary subset are actually identifiable in the discourse is not relevant.) To capture this property, Kenesei (1986) suggests the term *exclusion by identification* to designate the semantic operation performed by the focus movement construction, i.e., by what É. Kiss (1998) considers identificational focus. We continue referring to the operation performed by our EI operator simply as *exhaustive identification*, but a more precise term is *exclusion by exhaustive identification*, as suggested by the reference to *proper subset* in the informal definition (31).

(31) *Exclusion by Exhaustive Identification (EI)* (modified version of É. Kiss's (1998:249) characterization of identificational focus):

EI operates on a set of contextually or pragmatically given elements for which the predicate phrase can potentially hold; it identifies the exhaustive proper subset of this set for which the predicate phrase actually holds.

In sum, our finding that it is the syntactic encoding of the quantificational EI operator that renders a phrase goal for the apparent focus movement is fully consistent with the Strong Modularity Hypothesis (1) we introduced as a constraint on the set of syntactically active features. It must be noted that hypothesis (1) predicts only what notions will fail to have formal feature counterparts; it makes no prediction as to whether particular truth-conditional notions will actually have corresponding formal features active in the syntactic derivation.

5.2. Syntactic implementation: the EI-Op movement account

The evidence above has led to the conclusion that what the so-called focus movement correlates with consistently is the truth-conditional quantificational operation of exclusion by exhaustive identification (31), not focus/identification or contrast. Another important property of the movement is that it targets a fixed, unique structural position in the clause, unlike the various “scrambling” operations attested for instance in Japanese or German (on the latter, see section 6).

Given the designated landing site and its systematic one-to-one correspondence with the interpretive function of exhaustive identification (EI), our account needs to be based on the following generalizations:

- (32) a. The movement is formal feature-driven, in the sense of being due to attraction by a particular functional head via the Agree mechanism of the MP framework.
b. The formal feature driving the movement corresponds to the notion EI.

The next question is: how are these conclusions specifically realized in the syntax?

Well-known analyses of the phenomenon leave the relevant syntactic issues largely unspecified. Consider for instance É. Kiss's (1998) prominent proposal of a dichotomy between identificational focus (discussed in section 4.4 above), referring to the Hungarian-type syntactic movement case, and information focus, referring to in-situ prosodic focus. The descriptive insight underlying the proposal, namely that the two are separate types of phenomena, is indeed on the right track. Its semantic generalization that exhaustivity is a crucial distinctive feature of the so-called identificational focus (possibly along with contrastivity) is also valid. Yet beyond simply postulating a feature [+exhaustive] for the focus element of the identificational type, É. Kiss's proposal provides no sufficient analysis as to the origin, location and functioning of this assumed feature in the derivation. It also leaves unspecified the relation of the [+exhaustive]-marked identificational focus to prosodic focus, occurring without marking for this feature. Are the latter foci altogether distinct categories, for which the [exhaustive]/[contrastive] features are irrelevant and they just happen to share the designation *focus* with the former identificational variety? Or is the [+exhaustive]-marked identificational focus a marked subtype of a broader category focus? Although from the text it sounds like the intention is to regard these as two independent types of discourse notions, no explicit position is taken in the study. The choice would bear directly on a significant syntactic question left open by the proposal, namely whether the assumed [+exhaustive] feature is located necessarily on the constituent marked as prosodic focus in the moved phrase, or whether it occurs independently of this focus.

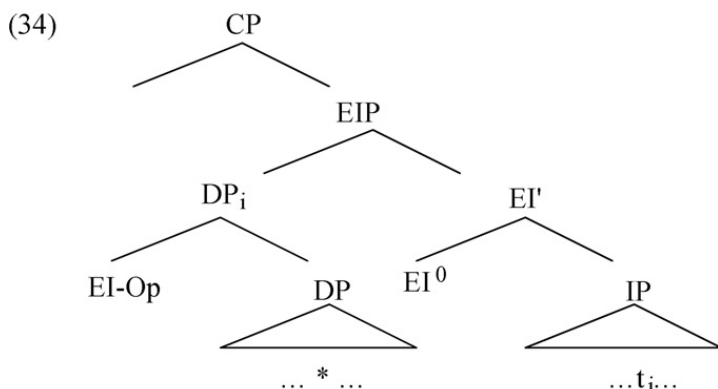
Turning to our account capturing (32), the starting point is that the feature-driven movement observed involves encoding EI in the syntax by a formal feature. Where does this [EI] feature occur in syntactic structure? And where does it come from? Obviously, it is not a feature inherent to some lexical category (unlike inflectional features, like number or gender). Furthermore, given the restrictive principle of inclusiveness fundamental to derivations in the MP framework (Chomsky, 2000), the feature encoding EI cannot be assigned to constituents merged in the syntax; only lexical items (either of the “lexical” or the “functional” type) can introduce formal features into the derivation. Thus, the feature encoding the EI operation in the syntax can only originate on a corresponding grammatical morpheme, part of the functional lexicon. It enters the derivation via the numeration, carried by a functional element EI (parallel to features encoding categories such as tense or distributive quantification).

Consider then the outline of the account (33) and (34) (based on Horvath, 2000).

(33) *Major Ingredients of EI-Op movement*

- a. Assume an EI Op(erator), and a clausal functional head EI⁰ with an uninterpretable (unvalued) [EI] operator feature. This feature of EI⁰ enters into an Agree relation with an EI-Op in its search (c-command) domain. The EI⁰ head has an EPP feature, and consequently (overt) movement applies: the matching EI-Op gets attracted by EI⁰ to the Spec, EIP position.⁶
- b. The EI Op – able to enter an Agree relation with the corresponding [EI] feature of EI⁰ – can merge into syntactic structure at the root of DP (and possibly also other phrasal constituents, such as PP, VP, and CP). EI-Op movement pied-pipes the phrase whose outermost specifier it occurs in.
- c. EI-Op associates with focus: it requires stress-based (information) focus within its c-command domain, i.e., within the phrase it attaches to, just like e.g. *only* and *even* do (on the latter see Schwarzschild, 1997).

The structure for EI-Op movement: (the asterisk indicates the position of main stress)



Observe the examples in (35) analyzed under our proposal as EI-Op movement. The (a), (b) and (c) versions contrast only with respect to their prosodic focus (the phonological word carrying main stress is capitalized):

- (35)
- a. [EI-Op [MARI Budapest-en élő fiát]] hívták fel *t*.
Mary-NOM Budapest-on living son-hers-ACC called-3PL up
'They called up [MARY'S son living in Budapest].'
 - b. [EI-Op [Mari BUDAPESTEN ÉLŐ fiát]] hívták fel *t*.
'They called up [Mary's son LIVING IN BUDAPEST].'
 - c. [EI-Op [Mari Budapest-en élő FIÁT]] hívták fel *t*.
'They called up [Mary's SON living in Budapest].'

⁶ This parallels the case of *wh*-movements, and even more significantly, the case of quantifier phrases; the latter undergo overt A-bar movement in Hungarian (see Szabolcsi's, 1997, feature-driven account for different types of QPs).

Each subcase in (35) manifests exhaustive identification of a proper subset of the set of contextually relevant alternatives for which the predicate *they called up x* holds. The alternative values of the variable correspond to the whole preposed DP, namely to the constituent the EI operator is attached to in [EI-Op DP]. What is then the difference between the subcases of (35), and what role does prosodic focus play in these EI-Op constructions?

The subcases of (35) differ regarding the domain of quantification available for the EI-Op: the set of relevant alternatives, i.e., the potential values of the variable, are different in the three cases due to the different division into focus vs. background within each DP. This in turn is due to the occurrence of main stress on different constituents of the DPs. For instance, in (35a) the set of contextually salient alternatives for the DP [*MARI Budapestén élő fiát*] ('MARY'S son living in Budapest') vary with respect to the possessor phrase: *Mari Budapestén élő fiát*, *Kati Budapestén élő fiát*, etc. In contrast, in (35b), the set of relevant alternatives for the DP [*Mari BUDAPESTEN ÉLŐ fiát*] ('Mary's son LIVING IN BUDAPEST') vary with respect to the participial adjunct: *Mari Budapestén élő fiát*, *Mari Londonban élő fiát*, etc.

In sum, it is the EI⁰ head – syntactically encoding the quantificational relation of exclusion by exhaustive identification – that has the EPP feature and that picks and attracts the EI-Op phrase from its search domain. There is no evidence and no need for focus itself to be encoded in the syntax.⁷ EI-Op manifests association with focus. What earlier theories called information focus, as distinct from the alleged identificational/contrastive focus, is nothing but the plain uniform notion focus, attested directly when it is not in the scope of an EI-Op. In the absence of EI-Op, no exhaustive interpretation arises, and crucially, no feature-driven A-bar movement of the focus constituent is expected. Thus, the potential problem that the Hungarian-type focus movement seemed to pose for our Strong Modularity Hypothesis (1) has been shown not to materialize: the movement turned out to be driven by a formal feature that encodes the clearly truth-conditional quantificational operation EI. A discussion of the various empirical advantages resulting from the EI-Op movement proposal is presented in Horvath (2006).

Finally, note that the above analysis also yields desirable conceptual consequences regarding the status of focus. It retains focus as a unitary notion, rather than forcing a split into two distinct types. This in turn is supported by the fact that prosodic prominence is a property shared by the two allegedly distinct types; both A-bar-moved and in situ focus phrases contain the main stress of the clause. Moreover, the prosodic foci involved in the two cases exhibit the same options of, and constraints on, focus projection (in the sense of Selkirk, 1984; on this parallelism, see Horvath, 2000). Given the proposal advanced above, focus remains a uniform prosody-based interface phenomenon (outlined in section 4.1); it is non-exhaustive, and it is unencoded in the syntax.

6. Contrast without exhaustivity: more movements to the left periphery

In the preceding two sections, we established that the Hungarian-type contrastive focus movement is in fact well-behaved with respect to our Strong Modularity Hypothesis for Discourse Features (1). The movement turned out to be driven by a formal feature [EI], a feature encoding in the syntax an uncontroversially truth-conditional notion, namely a quantificational operator, with the semantic import of maximality. But, as noted at the outset, contrast covers a much broader range of linguistic phenomena than just the kind of contrastive focus case analyzed above. Crucially, various other well-known manifestations of contrast, described in the literature for a wide range of languages, occur with syntactic A-bar movement operations (typically to the left periphery of the clause), yet they often do not have the semantic import of exhaustivity (maximality) that was shown to be what drives movement in the Hungarian-type case. Such contrast-related syntactic movements then constitute obvious new test cases and potential challenges for the Strong Modularity Hypothesis (1).

The prediction of the hypothesis is that if these contrast constructions comprise no truth-conditionally relevant quantificational entity, then the attested movements cannot be driven by a formal feature (such as [contrast]). Instead, movements corresponding to contrastive interpretation must be due to interface effects. Specifically, they must be applying freely as far as the syntax is concerned and be licensed directly by accommodating needs of mapping the

⁷ As argued in section 4.3.1, even if the focus constituent were assumed to carry a [focus] feature, this feature still could not be assumed to induce movement (pied-piping) of the DP, as is shown, e.g. by (35b). The constituent that is focus according to both prosodic prominence and semantics in the moved DP of (35b) is an adjunct, and adjuncts neither project focus to the hosting maximal projection (Selkirk, 1984), nor do they permit pied-piping in other known A-bar movement cases, such as *wh*-movement.

output of syntax to representations within the information structure module. So let us examine the empirical validity of this prediction.

The most obvious case to explore is provided by contrastive topics. The reason is that contrastive topic constructions (a) are wide-spread cross-linguistically, (b) commonly exhibit syntactic A-bar movement, (c) are easily identifiable due to the fall-rise intonation pattern (Jackendoff's (1972) B-accent) associated with the Contrast phrase, and most importantly, (d) have no semantic import of exhaustivity (maximality), as shown below.

As for discourse function, contrastive topics are contextually anchored in that the contrasted constituent involves a narrowed down or changed topic relative to the preceding context, such as a corresponding question (see (36), from Büring, 1997; italics indicate the constituent bearing the fall-rise accent, small caps indicate a fall):

- (36) Q: What did the pop stars wear?
A: The *female* pop stars wore CAFTANS.

The answer is non-exhaustive, as it leaves unspecified a “residual topic”, shown by the question *What did [the male pop stars] wear?*, corresponding to the contrastive topic of (36) [*the female pop-stars*]. This confirms that in the case of contrastive topics no EI-Op is involved. The conclusion is reinforced by the fact that Hungarian contrastive topics cannot appear in the EI-Op licensing position (left-adjacent to the verb), as was shown in section 4.5 (24).

These cases instantiate contrast as they clearly invoke a membership set; an expression with a lambda-bound variable arises – we can refer to this as the domain of contrast – which yields a set of alternatives. Although this could potentially be a domain for quantificational operations, it appears that in the construction at hand no particular quantificational operator, such as the maximality operator EI-Op motivated for Hungarian focus movement, is present. Instead, a contrastive topic seems to only provide specification of a particular element of the relevant membership set that is crucially distinct from, i.e., contrasts with, some other contextually given/salient member(s). Strong evidence that the contrastive topic construction is indeed non-quantificational is provided by the data in (37) discussed below. Note that establishing the absence of any quantificational operator in the construction is important for testing the Strong Modularity Hypothesis for Discourse Features (1): if contrastive topics did involve a quantificational operator, then the related A-bar movements observed could in principle be driven by a corresponding formal feature, and thus would provide no clear challenge for (1).

Consider then potential Weak Crossover effects regarding preposed contrastive topics, as in the English example (37), (adapted from Lasnik and Stowell (1991, (34))).

- (37) Preposed Contrastive Topics and Binding
This book_i, [I would never ask *its_i* author to read *e*], but *that book_j* [I would (ask *its_j* author to read *e*)]

The availability of the sloppy identity reading in the elliptical version of (37) establishes the existence of a bound variable, rather than just coreference. Given this, the absence of Weak Crossover effects attested, i.e., the possibility of anaphoric relation between the pronoun and the A-bar moved contrastive topic *this book*, indicates that this contrast construction is not quantificational, i.e., does not involve a true quantifier (in the sense of Lasnik and Stowell, 1991).

Thus, contrast per se only invokes a domain upon which particular quantificational elements, if present in a particular contrast construction (e.g. maximality in the Hungarian EI case), may operate. As contrastive topics are non-quantificational but nonetheless involve syntactic movement, they pose a direct challenge to our Strong Modularity Hypothesis (1). What is it that drives the non-quantificational contrast-related movement instantiated in (37)? Is contrast, as manifested in contrastive topic constructions, a pure discourse notion that nevertheless turns out to be syntactically encoded by a formal feature? What we need to determine is whether the movement corresponding to contrast interpretation is (a) driven by a formal feature, thus contradicting the Strong Modularity Hypothesis (1), or (b) it is a direct interface effect, as is expected based on (1).

In order to offer a meaningful answer, we must clarify how one may distinguish empirically between feature-checking vs. directly interface-induced movements. Let us start with expected characteristics of movements driven by a formal feature and its checking on a corresponding functional head, as assumed in classic versions of the MP framework for *wh*-movement to Spec,CP, and as maintained for a much wider range of movements on current cartographic approaches (e.g. Rizzi, 1997, 2004). The particular formal features assumed project functional categories that appear in designated fixed hierarchical positions in phrase structure, and their Spec position serves as the site for the matching phrase that checks/licenses this formal feature (see Rizzi's *criterial* positions). Accordingly, formal

feature-driven movements are expected: (a) to be obligatory, i.e., to take place consistently whenever the particular feature appears in the clause, (b) to have a unique, fixed landing site in the structure, namely the Spec position of the functional head projecting the given formal feature, and (c) not to permit phrases lacking the relevant feature to occur in the same landing site. In contrast, interface-licensed, i.e., non-feature-driven, movements would be expected not to display this cluster of properties. Instead, such syntactically untriggered movements can be identified by exhibiting some of the following characteristics⁸: (a) optional application, (b) multiple, rather than necessarily unique, landing sites, due to having no dedicated functional head projecting the feature that attracts the moved constituent, and (c) not necessarily a single uniform interpretive effect associated with a given landing site (regarding these properties, see Neeleman and Van de Koot's, 2008, discussion of mapping rules from syntax to information structure).

The cluster of feature-driven movement properties noted above are manifested for instance by Hungarian EI-Op movement discussed in sections 4 and 5, as well as by *wh*-movement in the English-type languages. But consider the case at hand, namely contrastive topic movement (as in (37)), in light of the above diagnostic properties. It is well-known that contrastive topics are attested in situ as well; their preposing to a left peripheral position is optional, rather than being a necessary condition for their interpretation as contrastive topics. This is demonstrated for English by (38a) vs. (38b):

- (38) Do you know who John gave the book to?
 a. I'm not sure, but he gave *the record* to Susan.
 (Neeleman and Van de Koot (2008; ex. (6))
 b. I'm not sure, but *the record* he gave *t* to Susan.

Observe that in the syntactic representation of (38a), the contrastive topic phrase is surrounded by material that belongs to the comment at information structure, namely *he gave x to Susan*; thus the comment does not correspond to a constituent in the syntax. On the other hand, (38b), having undergone preposing, exhibits a structure in which the comment does correspond to a constituent. This difference suggests that the movement may represent an interface effect, namely be due to the mapping of syntactic representations to information structure. This hypothesis is motivated and elaborated by Neeleman and Van de Koot (2008) based on their detailed study of Dutch scrambling. Let us consider contrastive topics in Dutch and their relation to syntactic A-bar movement.

Contrastive topics in Dutch undergo A-bar movement that turns out to manifest properties inconsistent with being a feature-checking-driven movement.⁹ First, the movement of contrastive topics is optional; in Dutch, similarly to what we saw in (38) for English, in situ contrastive topics are possible. Thus the movement has no obvious effect on the interpretation of the displaced phrase itself. This leads Neeleman and Van de Koot (2008) to hypothesize that the rationale for the movement is not related to the licensing or interpretation of the preposed contrastive topic phrase at all. Instead, they propose, the movement takes place in order to delineate the informational unit comment in the structure. Specifically, the movement extracts the contrastive topic, and thus creates a constituent in the syntax that corresponds to the comment, and as a consequence, the structure is ready for interpretation in information structure via a direct, transparent mapping procedure. Further empirical support for this claim is provided by their discussion of the flexibility of the relevant landing site, namely, the clear absence of a fixed, unique landing site associated with contrastive topic movement (see e.g. (39a,b); the contrastive topic is bracketed in italics).

- (39) a. dat Jan [zo'n boek] alleen Marie *t* zou geven
 that John such-a book only Mary would give
 'that John *such a book* would give only to Mary'
 b. dat [zo'n boek] alleen Jan Marie *t* zou geven
 that such-a book only John Mary would give
 'that *such a book* only John would give to Mary'
 (adapted from Neeleman and Van de Koot, 2008, (37b)-(38b))

⁸ Although these properties provide useful diagnostics, they presumably constitute only sufficient but not necessary conditions for identifying a movement as interface-driven. It is conceivable for instance that some interface requirements have the effect of rendering movement obligatory.

⁹ A-bar movements in Dutch are straightforwardly distinguishable from A-scrambling in the language, as they can cross over arguments, while A-scrambled phrases cannot.

A further property pointed out in the study is that the landing sites attested for preposed contrastive topic phrases are not associated necessarily with a contrastive topic interpretation; the same positions are shared with preposed focus phrases (as demonstrated by Neeleman and Van de Koot, 2008, (37a) and (38a)). The latter focus movements are also optional movements, with multiple potential landing sites in Dutch, and as argued by Neeleman and Van de Koot, these too represent directly interface-driven, rather than feature-checking (i.e., syntactically encoded), movements.

Based on the above, as well as further generalizations, Neeleman and Van de Koot advance an interface-licensed, syntactically untriggered, conception of these movements. What licenses such movements according to the proposal is that they yield syntactic configurations matching the required input form of a mapping rule of information structure, a *discourse template*, that otherwise would not be able to apply. For concreteness, consider the particular mapping rule they propose for interpreting the comment in contrastive topic constructions within information structure (based on Neeleman and Van de Koot, 2008, (9) and (10)).

(40) Comment Mapping Rule

If XP in (41) is interpreted as topic, then interpret N2 as comment.

(41) [_{N1} XP [_{N2} ... t ...]]

If no syntactic movement applies, then in cases such as (38a), the mapping rule (40) is inapplicable, and there is no trivial procedure that can convert the overt syntax of the contrastive topic and corresponding comment into an information structure representation. Thus there is a trade-off in terms of derivational economy between the application of a syntactic movement and the simplicity of the mapping procedure needed.

In light of the above, we suggest that syntactic A-bar movements of contrastive topics are not driven by a formal feature, such as [contrast] or [topic] and a corresponding functional projection checking it. Rather the movements appear to be more adequately analyzed as non-feature-driven, i.e., pure interface phenomena. If so, then contrary to initial impressions, these movements are in fact fully consistent with our Strong Modularity Hypothesis for Discourse Features (1).

The claim that contrast-related syntactic movements are not formal feature-driven targeting some particular functional projection, such as ContrP, in a cartographic left periphery has been motivated above by the non-uniform, flexible nature of the possible positions of contrastive phrases observed within clause structure. But so far we have only examined contrastive topics. One may wonder about possible further non-quantificational instances of contrast, namely cases that involve contrastive but non-exhaustive foci, rather than contrastive topics. Such cases may still turn out to manifest feature-driven movement, which would contradict the Strong Modularity Hypothesis (1).

There is at least initial indication, however, that the diagnostic properties of interface-driven movement we relied on regarding contrastive topics in fact can be found also in cases of (non-exhaustive) contrastive foci. A relevant test case, namely contrast associated with movement without topic function, is provided by contrastive foci attested in ellipsis constructions. Remnants of ellipsis, including fragment answers, are convincingly argued by Merchant (2004) to undergo preposing that extracts them from the elided constituent (ellipsis being analyzed as PF-deletion, i.e., non-pronunciation, of a constituent). These remnants, uncontroversially, receive a contrastive interpretation. Examining ellipsis remnants occurring within a single language, for instance English, one finds that these preposed contrastive phrases occupy transparently different derived positions. Compare the positions of the remnant in the fragment answer (42), outside the TP, and the remnant in the pseudo-gapping construction (43), clearly within TP (outside of VP).

(42) Q: Who did she visit?

BILL <she visited> (but not JOHN <she visited>)

(43) Mary will send BILL a Christmas card and Bill will SUSAN <send a Christmas card>.

These examples instantiate non-topic contrastive phrases that have undergone movement, yet crucially, lack a single, uniform surface position. This is contrary to what one would expect if (putative) contrast-related movements were driven by feature-checking, i.e., were due to a formal [contrast] feature projecting a corresponding functional category in clause structure. A similar case in point, but one involving no ellipsis, is contrastive focus in Dutch undergoing A-bar scrambling. As demonstrated by Neeleman and Van de Koot (2008), this movement applies optionally, and also manifests multiple possible landing sites. If these contrast phenomena involve no formal feature,

as seems to be the case, what may then license the attested syntactic displacements? An interface-based proposal such as the one advanced in Neeleman and Van de Koot (2008) and related work is appropriate here as well.

Recall the core idea underlying this interface approach, which we can generalize to contrast-related movements. What licenses these syntax-internally untriggered movements is that their output enables a direct, transparent mapping of the syntactic representation of the clause onto information structure. Specifically, such a movement results in a partitioning of the clause to constituents corresponding to interpretive units of information structure (see (40) above, based on Neeleman and Van de Koot's comment mapping rule). Thus, we can assume that the extraction of a contrast phrase (no matter whether contrastive topic or contrastive focus) derives a syntactic constituent – the remnant of extraction – that corresponds to an open sentence; this is the expression that serves as the relevant domain of contrast at information structure. The movement has the effect of syntactically delineating the material based on which the set of alternatives is determined. Thus, it facilitates the mapping at the syntax–information structure interface.

A further case relevant here, which though extensively studied, remains highly controversial, is the movement of contrastive focus to the left periphery attested in various Romance languages (see e.g. the well-known case of contrastive focus in Italian discussed by Rizzi, 1997; Brunetti, 2003 and related work). Regarding the issue of exhaustive identification interpretation of this kind of contrastive focus preposing, there have been some contradictory claims made in the literature (e.g. É. Kiss, 1998 vs. Brunetti, 2003); other major works fail to address the question altogether, presumably making the (unwarranted) assumption that contrastiveness entails exhaustiveness.

If these movements turned out to express truth-conditionally relevant exhaustive identification, as assumed e.g. by É. Kiss, 1998, then no particular prediction would be made for the case by our Strong Modularity Hypothesis (1); namely, this would mean that the movement at least may (though need not) be driven by a formal feature (the [EI] feature of the quantificational EI-Op proposed above). However, Brunetti (2003) argues explicitly that the interpretation of left-peripheral contrastive focus in Italian is not necessarily exhaustive and has no extra quantificational property; it is merely existential, i.e., involves identification of a member of the relevant set, but without entailing exhaustivity/maximality. Evidence that the Italian left-peripheral contrastive focus has no import of exhaustive identification (unlike the Hungarian construction analyzed in section 5) is provided by the dialogue in (44) (Brunetti, 2003, example (5)).

- (44) a. IL CAPPELLO ha comprato Maria.
 the hat has bought Maria
 'It's the hat that Maria bought.'
 b. #No, ha comprato anche il cappotto.
 no has bought too the coat
 'No, she bought the coat too.'

Interestingly, in addition to being non-exhaustive, thus presumably non-quantificational, this kind of contrastive focus preposing displays another property distinguishing it from the quantificational EI-based construction discussed with respect to Hungarian. The Italian, but not the Hungarian, construction requires contextual anchoring; namely, the Italian-type contrastive focus preposing is commonly claimed (see e.g. Rizzi, 1997, and for Catalan, López, 2006) to be possible only when the context explicitly specifies members of the set involved in the contrast. Thus, such contrastive focus preposing is not appropriate in an answer to a regular *wh*-question. The absence of a similar requirement in the Hungarian case suggests that the need for contextual anchoring might be a correlate of the non-quantificational, pure discourse-phenomenon status of Romance contrastive focus. In any case, if the construction in Romance is without truth-conditional effect, then the question of what may drive the attested movement, whether it is feature checking-driven or not, becomes relevant for the Strong Modularity Hypothesis (1).

Observe now that the above properties suggestive of the construction being non-quantificational correlate with the fact that the movement turns out to be optional. In situ contrastive focus in Italian is perfectly possible, parallel to the preposed version. This is in contrast with the Hungarian EI-Op construction, where there was a necessary correspondence between the truth-conditionally relevant exhaustive identification interpretation and the alleged focus movement. The optional application of contrastive focus preposing in Italian is demonstrated in (45), based on Brunetti (2003, (2)):

- (45) a. La coppa, l'ha vinta Gianni.
 the cup it has won Gianni
 'As for the cup, Gianni won it.'
- b. No, Gianni ha vinto [LA MEDAGLIA]
 no Gianni has won the medal
- c. No, [LA MEDAGLIA] ha vinto Gianni.
 no the medal has won Gianni

Optionality is unexpected under a feature-checking driven scenario of movements. Consider the case of a known feature-checking-driven movement, namely, *wh*-movement, across languages; the languages that have *wh*-movement (such as English) manifest a uniform application of the operation, not a “free choice” one. Optional application is, however, fully compatible with an interface-based theory, under which the movement is licensed merely as a way of facilitating the mapping to information structure (as under Neeleman and Van de Koot’s theory discussed above).

In fact, optionality seems to be a general property of contrastive focus preposing, at least based on Romance. É. Kiss (1998) describes, in addition to Italian, Catalan and Romanian with the same property. Within her feature checking-driven approach utilizing the early minimalist device of feature strength for overt vs. covert movement, É. Kiss repeatedly needs to stipulate that the feature [+contrastive] driving the movement is specified as either strong or weak in each particular language. These curious stipulations reflect the fact that feature-checking-driven approaches have no natural way of dealing with movements applying optionally.

Apart from the interface mapping-based account suggested above, there exists an altogether different alternative view of apparent preposing of focus in Romance, put forward by Samek-Lodovici (2005). This comprehensive optimality theoretic analysis of the distribution of focus denies that the construction involves preposing altogether. It argues that the contrastive focus constituent in Italian is always in final position within the clause, due to requirements of prosody, and what creates the impression that contrastive focus has been preposed is only that the rest of the constituents appear in right-dislocated position.

In sum, there exist promising interface-based hypotheses, which (a) are empirically more adequate for the above range of movement phenomena than a syntactically encoded feature-checking account, and (b) are compatible with our Strong Modularity Hypothesis for Discourse Features (1). As indicated by the above discussion, interface effects, such as enabling transparent mapping to information structure representations, provide non-ad hoc alternative accounts, empirically distinguishable from syntactically encoded formal features driving particular syntactic movements.

There still is a residual kind of case, which might be suspected to constitute a counter-example to our hypothesis: the movement of Finnish contrastive phrases to the left periphery (see e.g. Vilkuna, 1995). It is often claimed that contrastive phrases, both focus and topic ones, land in the same unique position at the left periphery of the clause in Finnish. If the landing site is indeed a single position, being associated uniformly with contrastive interpretation, and if furthermore the movement is obligatory (unlike the other contrast-related movements discussed), this would suggest the existence of a ContrP and feature-checking in SPEC,ContrP. Assuming that this putative projection has no truth-conditional import (such as the quantificational EI motivated for Hungarian), then Finnish would indeed pose a problem for the Strong Modularity Hypothesis (1). At present, this case must be left for future investigation, due to the lack of clear-cut empirical evidence regarding the above questions (on contrast in Finnish, see also Vallduví and Vilkuna, 1998).

7. Conclusion

I have proposed a Strong Modularity Hypothesis regarding discourse-related features (1) and investigated its implications for the C_{HL} , based on syntactic phenomena involving the notion of contrast. The study of movements apparently driven by contrastive focus, and more generally by contrast as an autonomous notion of information structure, has provided evidence supporting the hypothesis. According to this hypothesis, syntactically encoded (called at the outset *type (ii)*) discourse-notions are only apparent. Only truth-conditional entities may have formal feature correlates active in the syntax, and consequently, all movements that correspond to non-truth-conditional notions, such as notions of information structure, are predicted to be necessarily interface phenomena. Crucially, they are not expected to be driven by a feature-checking mechanism, based on a dedicated functional head projecting a matching formal feature (as appropriate for instance for *wh*-movement). Indeed, neither focus nor contrast was found

to motivate a corresponding formal feature encoding it in the C_{HL} , in spite of the various syntactic movements *prima facie* associated with these notions.

Our findings thus support the strong claim that contrary to prevalent cartographic approaches, discourse-related formal features in fact do not exist. The phenomena that appear to potentially motivate them have been argued in the preceding sections to receive a more adequate analysis by being attributed (a) to independent quantificational operators of the C_{HL} having truth-conditional effects (as was the case for the maximality operator EI) or (b) to interface effects, such as facilitation of the mapping of syntactic structure to representations of information structure (as suggested for displaced contrastive topics and foci). The eventual validity of these conclusions, the scope of our Strong Modularity Hypothesis (1), as well as the particular mechanisms of interface-licensed syntactic movements (whether prosody-based, as claimed by Zubizarreta, 1998 for focus, templates of information structure à la Neeleman and Van de Koot, or others) will have to be further substantiated in future research.

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