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# The Structure & Derivation of Split Focalization

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**ABSTRACT:** In this paper I propose a minimalist and derivational theory of the Focus Structure that explains in a straightforward way the focal patterns of the answers of multiple-Wh questions as instances of split focus structures.

## 1-INTRODUCTION<sup>1</sup>:

To start, compare the sentences in 1b and 2b, and the questions they answer (1a & 2a respectively):

(1a) Who bought beer?

(1b) [John] bought beer.

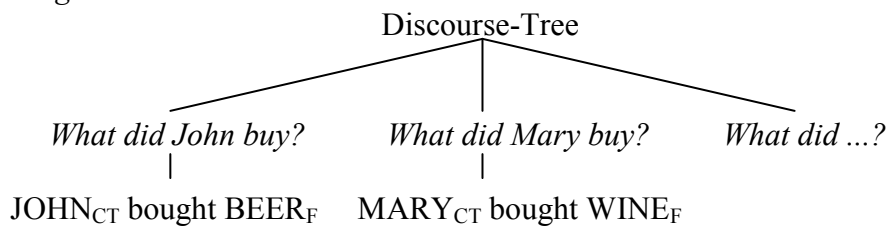
(2a) Who bought what?

(2b) [John] bought [beer]...

In the question-answer pair in 1, the question asks about the agent of the event of buying beer and the only element that is not given in the question that appears in the answer is the subject 'John', what is traditionally analyzed as being the focus of 1b (*cf. e.g.* Rooth (1985), Herburger (2000) and Krifka (2001)). In 2, on the other hand, we have a multiple-Wh question (2a) and in its answer, two elements that are not expressed in the question; the subject 'John' and the object 'beer'. The question I want to analyze in this paper is the following one: *What is the nature and discourse function of these elements?* To put it in other words: *what is the grammatical encoding of the information-packaging of these constructions?*

In order to account for these constructions, and assuming that the denotation of a multiple-Wh question is a set of sets of propositions, Büring (2003) proposes an analysis of sentences like (2b) based in the speakers choice of a question-subquestion 'strategy' that can be represented in D(iscourse)-Trees like 3a-b, and analyzing one of the non-given element as a 'contrastive topic' (CT) while the other as a 'focus' (F):

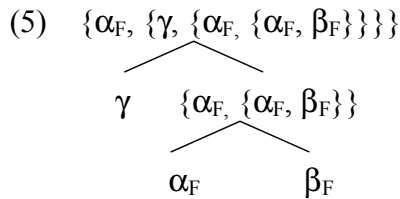
(3a) *Who bought what?*



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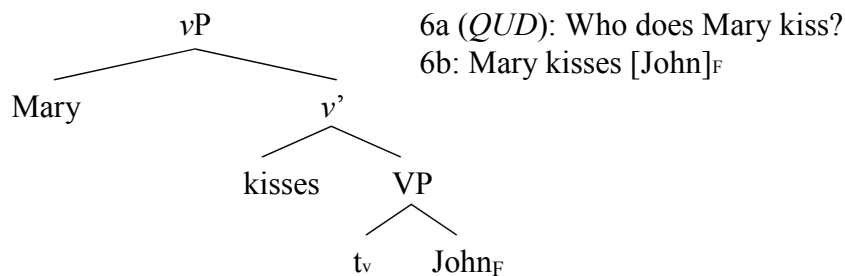


Although the head (and label) of the structure in 5 is marked as [+F], the whole structure won't be a set containing only [+F] featured lexical items, since the element  $\gamma$  (a member of  $\{\gamma, \{\alpha_F, \{\alpha_F, \beta_F\}\}\}$ ) does not bear the [+F] feature itself. Precisely because of the lack of the [+F] feature of  $\gamma$ , in this structure we will have just  $\{\alpha_F, \{\alpha_F, \beta_F\}\}$  as focus. Thus, we keep a direct mapping between syntax and semantics and build semantic interpretation in a strict compositional way. Furthermore, with this derivational analysis, we observe one of the core minimalist assumptions; the "Inclusiveness Condition" (Chomsky (1995, p. 228)):

*"Any structure formed by the computation (in particular,  $\pi$  and  $\lambda$ ) is constituted of elements already present in the lexical items selected for N; no new objects are added in the course of computation apart from rearrangements of lexical properties..."*

In order to show how the system works, let us say that we have the simplified numeration in 6, given the *Question Under Discussion (QUD)* in 6a. When the [+F] object (derived as in 4) is merged with the [+F] featureless verb, the new syntactic object (VP) won't be a set containing only [+F] featured lexical items. This will be so because the verb doesn't bear itself the [+F] feature. Such a configuration would end up in a sentence like 6b with  $[\text{Jon}]_F$  as the only focal element:

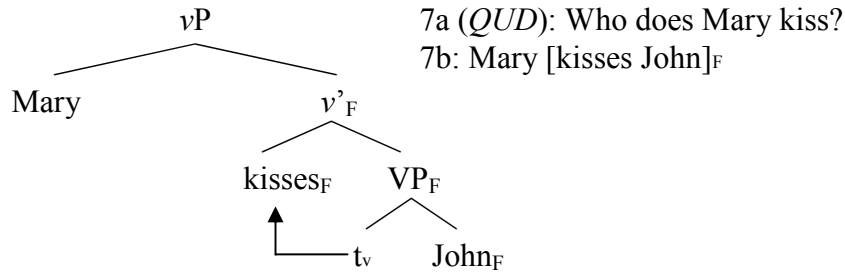
(6): Lexical Array:  $\{\{\text{Mary}\}, \{\text{John}_F\}, \{\text{kiss}\}, \{v\}\}$



Right in the same way, if we have the numeration in 7, when the object bearing a [+F] feature is merged with the verb that itself bears the [+F] feature<sup>3</sup>, the new object created ( $v'$ ) will be a set containing only [+F] featured lexical items, as in the sentence in 7b:

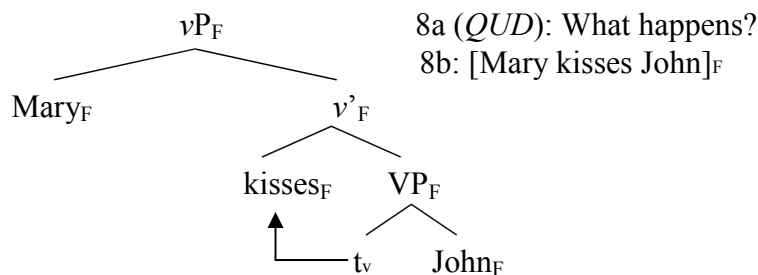
<sup>3</sup> For the sake of the argument, let me assume that the light verb itself also bears the [+F] feature.

(7): Lexical Array:  $\{\{Mary\}, \{John_F\}, \{kiss_F\}, \{v_F\}\}$



Instead, if we have the numeration under 8, when the object and the verb are merged, a new syntactic/set theoretic object is created made out of only elements that bear the [+F] feature. Once this object is merged with the light verb, and the new element is merged with the DP subject that itself bears the [+F] feature, we end up with a derivation that is a set containing only [+F] featured lexical items; that is an out-of-the-blue sentence (8b):

(8): Lexical Array:  $\{\{Mary_F\}, \{John_F\}, \{kiss_F\}, \{v_F\}\}$



Therefore, recall that according to this proposal, for an element to bear the [+F] feature does not mean that it will be the *actual* focus of the sentence but just that it will take part in the composition of the focus structure.

The system has some welcome predictions, among them, that it allows for the interface components to access the actual focus structure, since it is already set in the narrow syntax. Thus, for instance, the PF component will be sensitive to the already built F-Structure. As a brief example, many of the technical problems of a *Nuclear Stress Rule*-based theory of focus structure (*cf. i.a.* Neeleman & Reinhart (1998)) are avoided if we allow the Nuclear Stress Rule to apply just within the focus structure that we built up derivationally in narrow syntax:

(9) Nuclear Stress Rule: Assign Nuclear Stress to the element with most grid marks *within the focal structure*.

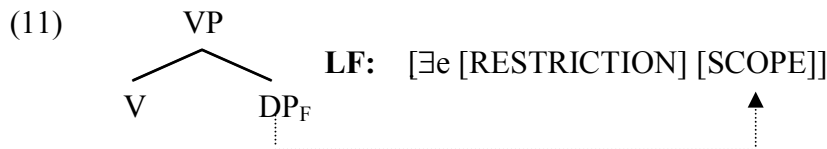
This new *NSR*, will predict correctly and without any further stipulation the Nuclear Stress placement (and prosodic phrasing) in different positions, given the different focus structures that derive from different numerations (*cf. Irurtzun (2003b)* for further discussion)<sup>4</sup>:

- (10a) John boiled [WATER]<sub>F</sub>
- (10b) John [boiled WATER]<sub>F</sub>
- (10c) [John boiled WATER]<sub>F</sub>
- (10d) [JOHN]<sub>F</sub> boiled water

<sup>4</sup> Nuclear Stress placement is marked with capital letters.

(10e) John [BOILED]<sub>F</sub> water

On the other hand, in order to provide a semantic representation for focus constructions at Logical Form, I will adopt the proposal of Herburger (2000). Herburger proposes that, taking sentences to be descriptions of events, at Logical Form the focal material is mapped into the scope of a restricted existential quantification over events<sup>5</sup>. As in 11:



For instance, the sentence in 12a as an answer to the question in 12b will have the Logical Form in 12c, where the non-focused chunk is the restrictor of the existential quantification (*i.e.*, the sentence's 'aboutness') and the focus is in the scope (*cf.* Herburger (2000)):

(12a) Mary bought [BEER]<sub>F</sub>.

(12b) What did Mary buy?

(12c) [∃e [Agent(e, mary) & Buy(e) & Past(e)] Theme(e, beer) & Agent(e, mary) & Buy(e) & Past(e)]

The restriction thus, will give the sentence's 'aboutness' information whereas the nuclear scope will give the propositional content. The focus will be the difference between the restriction and the nuclear scope (*cf.* von Stechow (1999) for a similar analysis in *DRT* terms). Thus, as argued earlier, to mark an element as [+F] in the numeration doesn't mean that it will be the actual focus of the sentence but rather that it will take part in the syntactic derivation of the focus structure in narrow syntax, and that it will take part in the focus interpretation at Logical Form.

As presented in this section, the derivational analysis of focus structure construction proposed in Irurtzun (2003b) provides a narrow syntax setting of the actual focus structure and allows for its interpretation in both interface levels. At PF we just have to modify the Nuclear Stress Rule to make it focus-sensitive and we get immediately the correct Nuclear Stress placement in every focal structure. At LF, and following Herburger (2000), we will assume that all the focal material is mapped into the scope of an existential quantification over events and that the focus interpretation is obtained by the computation of all the [+F] featured material that does not appear in the restriction of this quantification.

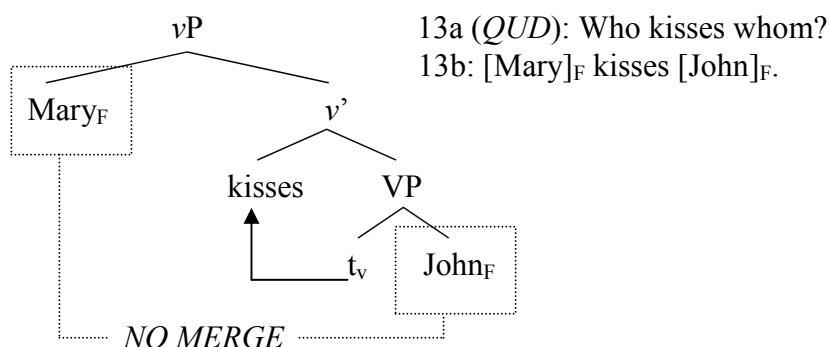
### 3-SPLIT FOCUS STRUCTURES

In this section I will analyze one of the possibilities that arises with the adoption of the derivational construal of the focus structure just proposed: the split focus structures. Then, I will discuss some of the intonational, semantic and syntactic properties of these constructions and argue that in instances of split focus, we have pairing answers to multiple-Wh questions like those represented with D-Trees in 3.

<sup>5</sup> Technically, all the material but the focal one is in the restriction and all the material is in the scope, something that I will assume here without discussion (*cf.* Herburger (2000)). See also Irurtzun (2005a) for a derivational analysis of the syntax of the LF just proposed.

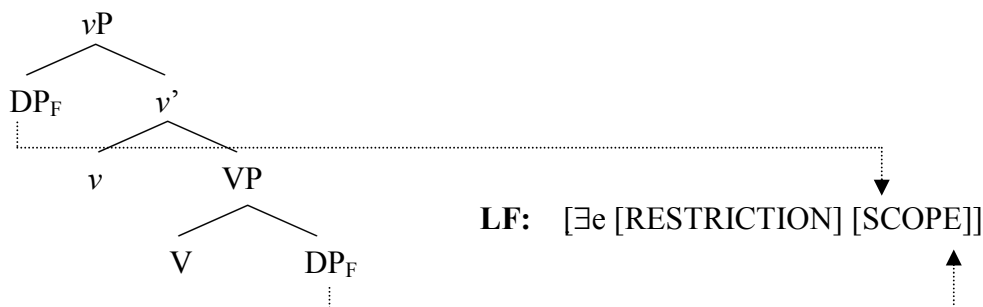
As just presented in section 2, I am assuming that the focal structure is built up in the narrow syntax with the dynamics of the derivation: when two focal elements are merged together the new syntactic object created will also be focal. However, such a theory has an interesting prediction: whenever two elements enter the derivation bearing each of them a [+F] feature but they don't merge together, two isolated focus structures will arise. This would be the case when a DP subject and a DP object enter the derivation being [+F] marked but the verb doesn't bear it. Following the examples 6-8, it would be something like 13:

(13): Lexical Array:  $\{\{Mary\}_F, \{John\}_F, \{kiss\}, \{v\}\}$



Thus, and following the LF representation proposed by Herburger (2000), at LF, all the [+F] material will be mapped into the scope of a restricted quantification over events:

(14)



Following this idea, in these constructions we don't have two independent foci (nor a contrastive topic and a focus as I will argue in 3.2) but just one focus that is derivationally split<sup>6</sup>. In fact, as argued in section 2, to be marked [+F] in the numeration doesn't entitle a lexical item to be the actual focus of the utterance, but it just will take part in construing the focus structure, be it in a strict compositional way as in 6-8, or in split focus constructions as in 14.

Having advanced the theoretical argument, let's review some of the properties of these constructions in order to clarify their split focus nature.

### 3.1-Intonational properties

In many languages, both elements that stand for a Wh-phrase in the question bear a pitch accent (*cf.* Bolinger (1958), Jackendoff (1972), Liberman & Pierrehumbert (1984) and

<sup>6</sup> Thus, these constructions are very different from those 'multiple focus' constructions analyzed in Krifka (1991) or Wold (1998). The constructions analyzed by these authors need an much more marked context to be felicitous and one of the foci on them always has an 'echoic' flavor. The analysis of these structures falls out of the scope of the present work.

Büring (2003)) for English, Büring (1999) for German, Godjevać (2000) for Serbo-Croatian and Aske (1997), Elordieta (2001) and specially Irurtzun (2003a) for Basque among many others).

However, even if it is true that each of the elements that stand for a Wh-phrase bear a pitch accent, the tunes associated to each of the elements are different. For instance, Jackendoff (1972) analyzes an answer to a multiple-Wh question as having two different pitch-accented elements that he calls ‘A’ and ‘B’:

(15)

**FRED** ate the **BEANS**  
           B                  A

The ‘B accent’ is characterized by a ‘fall-rise’ contour and the ‘A accent’ by a simple ‘fall’. According to his analysis, the B tune is associated with a “free” variable and the A tune to a “dependent” variable. The identification of the second variable will depend on the identification of the first one. These differences in tune-structure and ‘liberty’ of the variables have been analyzed as denoting that we’re in front of two different informational-packaging primitives: a focus (characterized by the A accent), and a contrastive topic (characterized by the B accent (*cf.* Büring (2003))).

However, having in mind the idiosyncrasies of focus-marking tunes in different languages, there is some regularity in the tunes for ‘contrastive topics’ across languages: right as with the ‘B accents’ of English, in other languages like Basque or Serbo-Croatian ‘contrastive topics’ are characterized by a final pitch rise. For Central Basque, I have analyzed these constructions as involving a tune composed by a H\* pitch accent and a H- boundary tone (*cf.* Irurtzun (2003a)). However, in this respect, the most interesting language that I am aware of is Serbo-Croatian as analyzed in Godjevac (2000): in this language, in an answer to a multiple-Wh question each of the elements bears a L\*+H pitch accent; and, akin to English or Basque, the ‘Contrastive Topic’ phrase ends in a H- phrase accent and the ‘focus’ in a L-. However, there is one additional tonal event involved in these constructions: an initial %H in the ‘focus’. This is shown in 16, as answering a question like ‘Who gave a lemon to whom?’:

(16)

%L L\*+H H-    %H    L\*+H L-  
   |   |    |       |       |   |  
 JE LE NA je MA RI JI dala.  
 ‘[JELENA] gave it [to MARY].’

Recall, that the %H boundary tone of 16 is not derived by the adjacent position of the H- phrase accent of ‘Jelena’, since, looking at 17 (where this adjacency does not hold), it seems that it is a categorical property of these constructions (since in normal/single focus utterances there is no %H at the left edge of the focus phrase):

(17)

%L L\*+H H-                                    %H    L\*+H    L-  
   |   |    |                                   |       |   |  
 JE LE NA je dala ravan MA RI JI.  
 ‘[JELENA] gave the flat one to [to MARY].’

I would want to use this evidence to propose that:



- (i) In answers to multiple-Wh questions both elements that stand for a Wh-phrase bear a pitch accent.
- (ii) The differences between both elements are phrasal, and there is a striking regularity across languages in that the tunes associated to ‘contrastive topics’ end in a high tone.
- (iii) As seen in Serbo-Croatian, the so-called ‘foci’ of the answers to multiple-Wh questions are not the same elements as foci that answer single-Wh questions.

Thus, and following the ‘isolated focus-constructions’ proposal of 14, I would want to suggest that in these constructions we don’t have a ‘contrastive topic’ + a ‘focus’ (as proposed by Büring (2003)), nor two independent foci, since the intonational patterns associated to them are not the same as those in sentences with a single focus. I would want to propose that in these constructions, what we have is a single focus that is the *pair* of both elements<sup>7</sup>.

### 3.2-Semantic properties

As is widely acknowledged (*cf.* among others Bošković (2002), Büring (2003)), in languages like English (18) or Basque (19) that show overt movement of (one of) the Wh words, sentences like 18b and 19b are *partial* answers of multiple Wh questions like 18a and 19a respectively:

- |  |   |
|--|---|
| (18a) Who broke what?  | (18b) John broke the door... (pair list)  |
| (19a) Zeinek erosi du zer?<br>which buy AUX what<br>“Who bought what?” | (19b) Jonek atea hautsi du... (pair list)<br>Jon door break AUX<br>“John broke the door...” |

In fact, in English, a question like 18 in a scenario that demands a single-pair answer is incongruent (see next section).

In one of the most widely accepted analysis of the semantics of questions (*cf. e.g.*, Hamblin (1973)) a question is taken to denote a set of propositions. For instance, the denotation of the question in 20a would be the set of propositions in 20b, where the Wh-phrase in the question has been replaced by different alternative values that are available in the context. Thus, an appropriate answer to the question in 20a will be one of the propositions in this set, 20c:

- (20a) Who got the flu?
- (20b) [[Who got the flu]]={{{Kepa got the flu}}, {{Eider got the flu}}, {{Adam got the flu}}, {{Ibon got the flu}}, ...}
- (20c) Kepa got the flu.

Extending this analysis, Hagstrom (1998) proposes that a multiple Wh-question like 21a denotes a set of questions, that is, a set of sets of propositions (21b). This question could be answered by the sentence in 21c:

- (21a) Who cooked what?

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<sup>7</sup> The common high phrase accents could be analyzed as grammaticalized ‘continuation rise’ contours, something that would not be surprising under this analysis, whereby the focus structure is split among both elements bearing the [+F] features.

(21b) [[Who cooked what]]={{{[[Adam cooked cod]], [[Adam cooked rice]], [[Adam cooked eggplants]]...}, {{{[[Julen cooked rice]], [[Julen cooked pasta]], [[Julen cooked tuna]]...} ...}}

(21c) Adam cooked eggplants and Julen cooked pasta.

As already advanced in the introduction, this semantics is adopted by Büring in his analysis of the discourse structuration and answerhood, proposing that in an answer to a multiple-Wh question we have different possible answer strategies like those represented in the D-Trees in 3 (in this case, it would be whether to answer by the agents of the event of cooking or by the themes). Thus, he proposes two independent discourse-configurational primitives: the 'contrastive topic' that would indicate a strategy, and the 'focus'. Crucially, both information-packaging elements are analysed as having the very same semantic import: that is, rising alternative values à la Rooth (1985). According Rooth's 'Alternative Semantics' approach, a sentence with focus has two denotations: the 'Ordinary Semantic Value' (OSV), that will be the proposition obtained compositionally by Montagovian function application (this proposition won't be affected by the focus), and the 'Focus Semantic Value' (FSV), a set of propositions obtained by the substitution of the focused phrase with alternatives available in the discourse that match the focus in semantic type (*i.e.*, the semantic value of the question it answers). For instance, in a context where we have 'Susana', 'Urtzi', 'Maia' and 'Kepa' as the relevant individuals, for a sentence like 22a we would have the two denotations in 22b:

(22a) [Susana]<sub>F</sub> ordered wine.

(22b) OSV: [[Susana ordered wine]]

FSV: {{{[[Urtzi ordered wine]], [[Maia ordered wine]], [[Kepa ordered wine]]}}

Starting out from here, Büring proposes an enrichment of the denotation of sentences with 'contrastive topics' by the introduction of a 'Contrastive Topic-value' (basically, a set of questions like that in 21b).

Despite the representational interpretation in Büring (2003) captures in an elegant way the denotation of these constructions, the 'topichood' of these elements is not very well established, after all, both the 'focus' and the 'contrastive topic' are analyzed as having the very same semantic import. Furthermore, as Büring himself notes (Büring (2003, p. 512)), the so-called 'contrastive topic' doesn't behave in some relevant respects like normal topics (for instance, its presence is mandatory and not optional (hence, they cannot be elided), they answer (in part) the question instead of stating necessarily old/given information and so on). Thus, I would want to suggest that we don't need the theoretical primitive of 'contrastive topic' in order to capture the semantics of these sentences<sup>8</sup>, and, as said before, in these constructions we have a *pair* of elements as the focus. For instance, in the case of 18, the focal elements can be regarded as taking part in a relation denoted by the verb; the B-accented item is the domain and the 'A-accented' one is the range. Even more, with the adoption of the derivational analysis of the focus construction presented in section 2, the pairing semantics of these constructions will be derivative of their focal status in a straightforward way.

Following Chomsky (1973) and Higginbotham & May (1981), I will assume that at LF, in a multiple-Wh question such as 23, an operator absorption takes place creating a compound operator that quantifies over pairs of variables:

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<sup>8</sup> Probably something like this will be necessary to analyze the 'additional topic' constructions analyzed in Umbach (2001). See as well the analysis of 'implicit subquestions' in Büring (2003).

(23) Who ate what?

LF: [WH  $x$ , WH $y$ : person( $x$ ) & edible thing( $y$ )]  $x$  ate  $y$

This LF representation for multiple-Wh questions is what will give us the *bijective* interpretation. Thus, the most natural assumption about the answers that these questions demand is to take both elements that stand for the pairs of variables in the question to be focal. The *uniqueness* of focus, the fact that each sentence has just one focus will be trivially accomplished given the LF representation assumed in section 2, whereby all the [+F] material will fall in the scope of an existential quantifier over events. For instance, for the sentence in 24a (as an answer to 23a), we would have the logical form in 24b:

(24a) John ate pizza.

(24b)  $[\exists e$  [Eating( $e$ ) & Past( $e$ )] [Eating( $e$ ) & Past( $e$ ) & Agent( $e$ , John) & Theme( $e$ , pizza)]

### 3.3-Some morphosyntactic properties: the ‘contrast’ particles of Japanese and Korean

Finally, with the analysis just sketched, we can also account for the usage/lack of usage of *contrast* particles of Wh-in-situ languages like Japanese or Korean, where multiple-Wh questions can be answered with either a single-pair or pair-list answer (*cf.* Hagstrom (1998), Bošković (2002)). Bošković (2002) gives the following scenario for triggering single-pair answers: *John is in a store and in the distance sees somebody buying a piece of clothing, but does not see who it is and does not see what the person is buying.* With this scenario, in a ‘Wh-moving language’ like English, a question like 25 is incoherent, whereas its counterpart in a ‘Wh-in-situ language’ like Japanese in 26 is fine:

(25) Who bought what?

(26) Dare-ga nani-o katta no?  
who-nom what-acc bought Q  
‘Who bought what?’

Whichever the explanation for the lack of single-pair reading in Wh-movement languages<sup>9</sup>, the case is that this reading is available in Wh-in-situ languages. The striking fact here is that in this type of languages, an answer to a multiple-Wh question is different when it is a single-pair or a pair-list answer (an asymmetry that up to my knowledge wasn’t attested in the previous literature on the topic). In languages like Japanese or Korean that allow for the single-pair reading, the usage of the some particles (‘-wa’ for Japanese, ‘-nun’ for Korean) varies with the type of answer; the appearance of those particles is mandatory in the first element when asked for a pair-list answer ((27a) for Japanese or (28a) for Korean) but, remarkably, in both languages, when the question demands a single pair, the answer cannot bear the such a particle (27b-28b):

(27a) Takako-wa wain-o kaimashita... (pair list)  
Takako-WA wine-ACC bought  
‘Takako bought wine...’

---

<sup>9</sup> See Bošković (2002) for a possible analysis.

(27b) Takako-ga wain-o kaimashita (single pair)  
Takako-GA wine-ACC bought  
'Takako bought wine...'

(28a) Yenghui-nun wain-ul sassta.... (pair list)  
Yenghui-NUN wine-ACC bought  
'Yenghui bought wine...'

(28b) Yenghui-ga wain-ul sassta. (single pair)  
Yenghui-GA wine-ACC bought  
'Yenghui bought wine'

Again, despite these particles have been analyzed as conveying the discursive notion of 'topic', in these cases we cannot talk about a topic, since it answers partially the question and might not be mentioned in the previous discourse. Furthermore, as argued recently by some scholars (*cf.* Munakata (2002), Kuroda (2003), Maruyama (2003)), they should be better reanalyzed as marking 'contrast', one of the core properties of focal elements.

#### 4-SUMMARY & CONCLUSIONS

In this paper, I have analyzed the properties of the answers to multiple-Wh questions. *Pace Buring* (2003), I have argued that in these constructions, we have a split focal structure and that at LF, it will lead towards having a pair of elements as being the actual focus. This analysis provides us with a natural understanding of the question-answer pairings since all the material that stands for a variable in the question is taken to be focal in nature. Furthermore, by dispensing with the theoretical primitive 'contrastive topic' that indicates a strategy and the D-tree, we can understand why the exchange in 29 is fine without alleging to some sort of 'change of strategy':

(29)

a: Who bought what?

b: Sergio bought beer, Cristina bought wine, and the water was bought by Angel.

With the view proposed in this paper, simply, there would be nothing to explain since in every sub-answer in 29b, we would have a pair of [+F] marked phrases.

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