Wh-inquiries into Modern Greek and their theoretical import(ance)

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Abstract: Within the framework of Generative Grammar, a standard (hypo)thesis has been that a (broad) wh-parameter may distinguish between two types of languages: those that front wh-elements (e.g., English) and those that realize them in situ (e.g., Chinese). Wh-fronting languages may also attest in situ arrangements, and a tacit (hypo)thesis, tied to the one above, is that in situ configurations translate to echo questions, while fronting configurations are genuine (information-seeking) questions. Neat as this taxonomy might look like, more recently it has been shown that, in Modern Greek, which is a typically wh-fronting language, each wh-configuration may map to either meaning. On the assumption that syntax mediates between form and meaning, mapping the former to the latter, the question that the Modern Greek evidence raises is to what extent syntax regulates the form-meaning associations under consideration. In other words, the question is "how much" of the relevant semantics is registered in the corresponding syntactic structures. Capitalizing on already documented evidence from distribution, interpretation, and intonation, the present paper argues that syntax encodes certain aspects of the relevant semantics, and pans out a formal system that attributes other aspects of this semantics to a direct interaction between PF and LF, thereby recognizing the existence of this interface area. The theoretical import(ance) of this analysis (part of which is prefigured elsewhere) is that it revisits the standard organization of the Grammar, as viewed from a Minimalist perspective.

Keywords: wh-questions, syntax, semantics, intonation, form-meaning mapping, the organization of the Grammar.

1 The issue

Within the framework of Generative Grammar (see Chomsky 1957, onwards), and especially the Principles and Parameters approach (see Chomsky 1981, et seq.), the general consensus about the formation of wh-questions is that a (broad) wh-parameter may distinguish between two types of grammars, as in (1).[1]

(1) a. Who did you see? (English: wh-fronting)
b. Ni kanjian-le shei? (Chinese: wh-in situ)
you see-ASP who
"Who did you see?"

[1] Here and throughout, by "grammar", with lower case "g", I refer to language-specific grammars, as opposed to Universal Grammar, notated with upper case "G".

English, as in (1a), which may stand for the first type, typically exhibits "wh-fronting" ('off position') configurations. Chinese, which may exemplify the second type, normally attests "wh-in situ" ('in position') arrangements (cf., (1b), repeated from Huang 1982: 253, (159)).

We can describe the classical treatment of (1a) as follows: *who* originates as the argument of the predicate *see*, and is then "displaced" to the left periphery of the sentence, where displacement is what typically constitutes instances of "movement". In the argument position, *who* leaves a variable, while in the displaced site, the wh-phrase acquires scope by being construed with a Q(uestion) operator, which, in turn, binds the variable in the vacated site (see Chomsky 1977, Katz & Postal 1964, Baker 1970, and Pesetsky 1987, for early discussions). The relevant representation, then, amounts to a well-formed operator-variable wh-chain (see Browning 1987), in which *who*, in the projection of the operator, surfaces as the head of the chain, while the variable, in the original site, as its foot.

With respect to how wh-in situ operator-variable construals, of the kind in (1b), are generated, there have been three different views, in the relevant literature. By and large, there are approaches proposing that in situ wh-elements are displaced to a left peripheral site at LF ('covert phrasal movement'; e.g., Huang 1982, Nissenbaum 2000), whereby the in situ *shei* ('who') translates to an operator. Other approaches treat *shei* ('who') as an operator, as well, but propound that a wh-feature is displaced in narrow syntax, and hence there is no (need to assume) displacement of the entire wh-phrase at LF ('feature-movement'; e.g., Chomsky 1995a). And yet, other accounts assume that no displacement takes place whatsoever, that is, neither in syntax proper, nor at LF. Instead, some sort of "operator-variable" construal/quantification is at stake, whereby a relevant operator surfaces at the left periphery of the sentence, and binds the in situ wh-element, which is realized in its predicate internal site, and translates to a variable (e.g., Nishigauchi 1990, Chomsky 2000). Differences aside, the shared observation among the aforementioned accounts is that in situ wh-elements surface in the position of the predicate-internal site, and not in the one made available at the left periphery of the sentence, as opposed to the displaced *who* in (1a) (see, also, Cheng 1991, Watanabe 1992, Tsai 1994, Cole & Hermon 1994, 1998, Hagstrom 1998, and Cable 2007, among others).

In the context of cross-linguistic evidence revolving around (1), the (broad) wh-parameter, despite its various technical formalizations (see the references cited above for some discussions), says that, in English-type grammars, wh-elements acquire scope "overtly", while in Chinese-type grammars, wh-elements acquire scope "covertly" (this is a rough statement of the parameter, but will do for present purposes). Overt scope is evident at both PF and LF, and corresponds to displacement in syntax proper, as is exemplified with *who* in (1a). Covert scope is visible only at LF, and has no phonological effects, as is the case with *shei* ('who') in (1b). In short, the wh-parameter predicts that both types of questions share the same meaning (LF representation), but contrast in terms of form (PF representation), and that each question is associated with a distinct grammar: wh-fronting is associated with English, while wh-in situ with Chinese.

The wh-parameter has traditionally been concerned with what one may call "information-seeking" questions (hereafter, IQs), as exemplified in (1) above.[2] Roughly speaking, an IQ asks for the value of (the variable discharged by) a wh-element. Yet, along with IQs, wh-fronting languages instantiate another type of wh-question, whose form and meaning contrasts with the form and meaning of (1a). These are so-called "echo" questions (henceforth, EQs), which are typically exem-

[2] I borrow the descriptive term "information-seeking" question from Tsimpli (1998), and Bayer (2006).

plified by English sentences like (2b).[3]

(2) a. I saw John.
b. You saw WHO?

Specifically, *who*, which corresponds to *John* in (2a), appears "in situ", as opposed to *who* in (1a) (for ease of comparison with IQs, I will indicate echo elements with SMALL CAPS). Here, and throughout, I will avoid giving a precise definition of EQs, and simply assume that "…echo questions are not requests for new information; instead, they are requests for confirmation of something someone has heard (Carnie 2006: 340)".[4] It is true that EQs have rarely been discussed within the current minimalist view of syntax (an exception that confirms the rule is Sobin 2010), since they contradict general considerations regarding the "obligatoriness" of wh-movement. Even more so, EQs have traditionally been argued to fall outside the "core" properties of syntax. For example, Cooper (1983) proposes that EQs are not strictly speaking syntactic phenomena and reasons that (as cited by Parker & Pickeral 1985: 337) "…the grammatical rules of language should not generate them. The situation with these questions is, I think, quite similar to something that arises with stress in phonology."[5] Nevertheless, I hasten to note that I side with Sobin (2010: 131), who states that EQs "…are of great interest and relevance to analyses of question formation since they are clearly in the realm of 'automatic' and 'untutored' knowledge, just the sort of linguistic knowledge that generative grammar has had the aim of explaining since its inception."

Keeping the above remarks in mind, we have seen that, although EQs challenge the view that displacement is obligatory in the formation of wh-fronting questions, they appear to argue in favour of the following (hypo)thesis: wh-fronting arrangements map to IQs, while wh-in situ configurations map to EQs. The previous means that the mapping between the form and meaning of wh-questions, in wh-fronting languages, is one to one (1:1), in that there is one form for each meaning.

Neat as the aforementioned taxonomy may look like, once we restrict attention to Modern Greek, which is a typically wh-fronting language (see, e.g., Agouraki 1990, Tsimpli 1990, 1995, 1998, and Anagnostopoulou 1994 for early discussions), the actual empirical picture does not appear to come out that simple.[6] In particular, as Roussou, Vlachos, and Papazachariou (2013) (hereafter, RVP) have shown more recently (building mainly on Tsimpli 1995, 1998, Sinopoulou 2009, and Vlachos 2010, 2012), Modern Greek (henceforth, MG) features both wh-fronting and in situ arrangements, each of which may be understood as giving rise to either an IQ or an EQ interpretation. I exemplify this in (3) below. Notice that, in describing the evidence, I will stick to unlabeled bracketing. Also, in order to avoid unnecessary repetitions, whenever possible, I shall represent both wh-fronting and in situ IQ and EQ occurrences in the same sentence. However, I will enclose the in situ occurrences in parentheses to show that simultaneous manifestation is ruled out. So, strictly speaking, (3) represents four wh-questions: two IQs, fronting and in situ, and two EQs, fronting and in situ.

[3] Echo questions are also known as "confirmation seeking", or "reprise", or "repeat" questions.

[4] For more elaboration on various uses of echo-questions, I refer the reader to Bolinger (1987), Sobin (1978, 1990, 2010), Cooper (1983), Ginzburg & Sag (2000), and Fiengo (2007), among many others.

[5] Likewise, Carnie (2006: 341) argues that echo questions are licensed by intonation and stress.

[6] For a cross-linguistic picture, see Vlachos (2012).

(3) Pjo vivlio /PJO VIVLIO aghorases (pjo vivlio/PJO VIVLIO)?
which book-ACC bought-2SG (which book-ACC)
"Which book/WHICH BOOK did you buy?"

As we may observe, the direct object *pjo vivlio* ('which book') may either front or surface in situ. Under the proper intonation (more about this in section 2.3), each wh-question may facilitate either an IQ or an EQ reading.[7]

Let us put the above discussion into perspective. We have seen that, despite the standard (hypo)thesis about typically wh-fronting languages that wh-fronting forms translate to IQ meanings, while wh-in situ forms to EQs, MG, which is a typically wh-fronting language, may associate each wh-form with either meaning. Now, from the perspective of the Minimalist program (see Chomsky 1995a, et seq.), a standard assumption is that (narrow) syntax mediates between form and meaning, mapping the former to the latter. So, the question pertaining to the MG facts above is to what extent syntax regulates the relevant form-meaning associations. In other words yet: "how much" of the available interpretations are encoded by syntax?

Offering a first approach to the above issue, RVP propound that syntax registers some aspects of the relevant interpretations, and prefigure an approach that attributes other aspects of these interpretations to a "direct" interaction between PF and LF, that is, to an interaction not mediated by syntax proper. Maintaining this line of theorizing, the present paper commences from (aspects of) RVP's syntactic account, and pans out a formal system in which the relevant PF-LF interaction may be couched. To this end, section 2 summarizes the empirical findings of RVP, along with their corresponding observations (unless otherwise mentioned). These observations lead the analysis articulated in section 3, which proposes a certain division of labour between syntax and the interfaces PF and LF. A more theoretically driven, and to a certain extent tentative, rationale explores the relevance of the aforementioned analysis for the overall organization of the Grammar, as viewed from a Minimalist perspective (section 4). Section 5 concludes the discussion.

2 The facts

By examining the distribution (section 2.1), interpretation (section 2.2), and intonation (section 2.3), of wh-fronting and in situ IQs and EQs, RVP make a number of substantial observations, which I want to discuss below.

2.1 Distribution

A first observation is that wh-fronting IQs and EQs have the same distribution, which is also the case with their in situ counterparts. So, for example, the same pattern that is attested in root clauses, like (3) above, is also observed in long-distance wh-questions, where the wh-elements are construed with the embedded predicates. This is illustrated in (4).

(4) a. Pjos /PJOS [ipan [oti efije (pjos/PJOS)]]?
who-NOM said-3PL that left-3SG (who-NOM)
"Who did they say left?"

[7] In passing, note that MG is a "pro-drop" language, which means roughly that the realization of the clausal subject is optional (see, e.g., Philippaki-Warburton 1987, Horrocks 1994, Alexiadou & Anagnostopoulou 1998, and Rousou & Tsimpli 2006).

b. Ti/TI [ipan [oti edhose (ti/TI)]]??
what said-3PL that gave-3SG (what)
"What did they say that s/he gave?"

c. Se pja/SE PJA [ipan [oti edhose to dhaxtilidhi
to whom said-3PL that gave-3SG the ring-ACC
(se pja/SE PJA)]]?
(to whom)
"Who did they say that s/he gave the ring to?"

d. Pu/PU [ipan [oti tha pai (pu/PU)]]?
where said-3PL that will go-3SG where
"Where did they say that s/he will go?"

In (4a), *pjos* ('who') is associated with the embedded predicate *efije* ('left'), and may surface either in the left periphery of the matrix clause, or inside the embedded clause. The same is true with the direct object *ti* ('what') of the verb *edhose* ('gave') (cf., (4b)), the indirect object *se pja* ('to whom') of the verb *edhose* ('gave') (cf., (4c)), as well as, with the adjunct *pu* ('where') that modifies the predicate *pai* ('go') (cf., (4d)). In all these sentences, regardless of the site that the wh-elements surface in, both readings, i.e., IQ and EQ, are equally possible.[8]

Islands fit the same pattern, as in (5), which is enough to illustrate the point.[9]

(5) a. * Ti /TI se timorise [epidhi ipes (✓ ti/TI)]?
what you-CL punished-3SG because said-2SG (what)
"What did s/he punish you because you said?"

b. * Pote/POTE rotisan [pjos tha fiji (✓ pote/POTE)]?
when asked-3PL who-NOM will leave-3SG (when)
"When did they ask who will leave?"

(5a) is an example of Adjunct Clause island, which is considered as "strong", in that it blocks extraction of both arguments and adjuncts (see, e.g., Szabolcsi & den Dikken 2002, Szabolcsi 2006). Here, we see that if *ti* ('what'), which is the argument of the embedded predicate *ipes* ('said'), stays inside the adjunct clause introduced by *ephidhi* (because), the construction is grammatical (indicated with the sign '✓'), with either an IQ or an EQ interpretation. If, however, *ti* ('what') moves to the matrix clause, both interpretations are excluded. (5b) is a Wh-island, which is assumed to be "weak", since it impedes the extraction of adjuncts, while arguments are in principle unrestricted (see, e.g., Rizzi 1990, Cinque 1990, and Kiss 1993). The result is grammatical with in situ, under either reading, but ungrammatical with displacement of the adjunct *pote* ('when') to the matrix clause, over the embedded interrogative.[10]

[8] A note about the glossing of argument wh-phrases is in order: following Stavrakaki & Tsimpli (1999: 51–52), I assume that the morphological structure of *pjos* ('who') marks Case features overtly (as well as, Number and Gender), while *ti* ('what') does not, thus being underspecified. This difference is reflected in the relevant glossing in the text, where *ti* ('what') does not get a Case specification. Many thanks to an anonymous reviewer for pointing this glossing issue out to me.

[9] For evidence that MG wh-fronting abides by the typical islandhood pattern, see Horrocks & Stavrou (1987), and Kotzoglou (2005). See also Sinopoulou (2009), and Vlachos (2010, 2012) for more discussions about (MG) wh-in situ and islands.

[10] In the interest of clarity, notice that I abstract away from so-called "pair-list", "individual" and/or functional readings

2.2 Interpretation

Regarding interpretation, intuitively speaking, we expect that the prototypical distinction between the two types of questions is that IQs are requests for information, while EQs are (usually) not, as we have already mentioned (section 1). RVP show further that once IQs and EQs are examined in tandem with the two potential forms that each meaning may map to (i.e., fronting or in situ), a more fine-grained picture appears to surface.

Let us begin with IQs, in the context of (6), while EQs enter the discussion at the end.

(6) a. Anna, ti jinete (# ti)?
Anna-VOC what is-happening-3SG (what)
"Anna, what's happening?"

b. Pjos sto kalo irthe (# pjos sto kalo)?
who-NOM to-the good came-3SG (who-NOM to-the good)
"Who on earth came?"

(6) shows that, in the absence of a pre-established immediate linguistic environment, coined "micro-discourse", wh-in situ IQs, unlike their wh-fronting counterparts, become infelicitous (indicated with the symbol '#').[11] For example, as in (6a), wh-in situ arrangements may not facilitate "out-of-the-blue" questions, as opposed to their wh-fronting counterparts. A similar effect can be obtained with phrases like *on earth* (or, *the hell*), which attach to the wh-element (cf., (6b)). As Pesetsky (1987) shows, such phrases are considered to force an "aggressively non-D(iscourse)-linked" reading, in that "…the appropriate answer is presumed not to figure in previous discourse (p. 111)" (see also den Dikken & Giannakidou 2002 for a more recent discussion).[12]

Arguably, out-of-the-blue and aggressively non-D-linked contexts enforce the question interpretation that there is no presupposition as to what the value of the wh-element may be. Capitalizing on this observation, RVP suggest that in cases like (6), a satisfactory answer to each of these wh-fronting IQs does not rely—and cannot, after all—on a presupposed set of alternative values, from which the fronted wh-elements may draw; hence, anything goes. Drawing from the literature on the semantics of questions (e.g., Kartunnen 1977, Groenendijk & Stokhof 1984, Heim 1994, and Beck & Rullman 1999), RVP term this property of wh-fronting questions—namely, the fact that the wh-element draws from a non-presupposed set of values—as "non-exhaustive quantification" (or, "non-exhaustivity", for that matter).

On the other hand, wh-in situ IQs necessarily lean on the presence of a micro-discourse. This is illustrated in the dialogue in (7).[13]

(7) a. *Speaker A*
My father, my mother, and I went to the store to buy eggs, milk and

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that are evident under the association of *pjos* ('who') with the in situ *pote* ('when'). Obviously, such matters call for an examination of "multiple" wh-questions, which are orthogonal to present purposes. For early discussions of multiple wh-questions, see Higginbotham & May (1981), Pesetsky (1987), and Reinhart (1998), as well as, Sinopoulou (2008), for a recent approach to MG.

[11] For similar evidence and judgments, see Sinopoulou (2009), and Vlachos (2010).

[12] Sinopoulou (2009) shows that *the hell* phrases fit the pattern, as well.

[13] As also acknowledged by RVP, this dialogue is first discussed in the context of Spanish wh-in situ IQs by Uribe-Etxebarria (2002: 222, (14a,b)), and is attributed to Jiménez (1997).

coffee. My mother bought the eggs.

b. *Speaker B*
Ke o pateras su aghorase ti?
and the father-NOM yours-CL bought-3SG what
"And what did your father buy?"

In (7a), speaker A describes an event of buying that involves three agents, i.e., the speaker's father, mother, and the speaker herself, as well as, three entities, i.e., eggs, milk, and coffee. Speaker B, who is familiarized with both the set of agents and that of entities, by virtue of (7a), may make the wh-in situ IQ in (7b). We see, then, that the micro-discourse in (7a) makes available a possible set of values from which the in situ wh-element in (7b) may draw (with the exclusion of the value "eggs" for obvious reasons). So, the availability of a set of alternative values is what distinguishes the micro-discourse in (7a) from out-of-the-blue and aggressively non-D-linked micro-discourses, discussed previously, making the wh-in situ IQ felicitous. Generalizing on this fact, RVP suggest that a wh-in situ IQ, unlike its wh-fronting counterpart, yields an "exhaustive quantification", which means that the in situ wh-element presupposes a (restricted) set of alternative values, and selects a value from this set, entailing the exclusion of the others.

Turning to EQs, RVP keep a similar line of argumentation, and demonstrate that EQs, both fronting and in situ, are infelicitous in out-of-the-blue and aggressively non-D-linked contexts, as well as, in micro-discourses like (7a). An EQ becomes felicitous so long as the value of the wh-element is prominently figured in the micro-discourse. More precisely, witness again the micro-discourse in (7a), repeated below as (8a) for convenience, with the continuation given in (8b).

(8) a. *Speaker A*
My father, my mother, and I went to the store to buy eggs, milk and coffee. My mother bought the eggs.

b. *Speaker B*
TI aghorase i mitera su (TI)?
what bought-3SG the mother-NOM yours-CL what
"You mother bought WHAT?"

As already mentioned, the micro-discourse in (8a) makes available a set of values from which a wh-element may draw. These values range over 'eggs,' 'milk' and 'coffee.' Yet, as RVP reason, only 'eggs' acquires a prominent status among the other members of the set, which are still under 'negotiation,' so to speak, since the relevant agents (i.e., 'father' and 'speaker A') have not been mapped to the corresponding entities (i.e., 'milk' and 'coffee'). So, the saliency of the 'eggs' is what makes the EQ felicitous in (8b), in that *ti* ('what') targets the most prominent value in the micro-discourse. In other words, *ti* (what) presupposes no set of alternative values, either non-exhaustively or (strongly) exhaustively, but just a single value, here the 'eggs'. To say that EQ-contexts do not facilitate sets of alternative values for the wh-elements amounts to saying that the wh-element lacks quantification in these contexts, on the assumption that the notion '(wh-) quantification' entails the notion 'set of values'. So, borrowing Tsimpli's (1998) terminology, RVP coin the relevant EQ reading 'individual'.

2.3 Intonation

Let us now turn to the intonation contours of IQs and EQs, both fronting and in situ. Preliminarily,

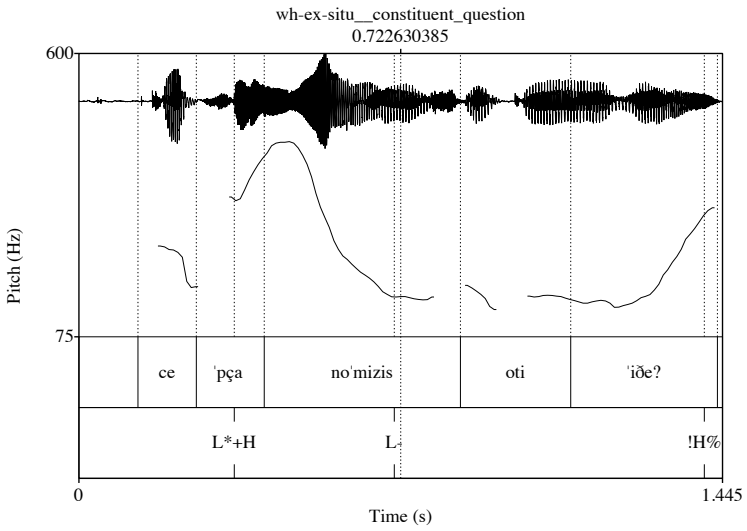
and judging only by intuition, EQs sound as if they have a "higher" or "heavier", so to speak, tonal melody than that relevant for IQs. If so, then, it is expected that each wh-question may have a matching intonation contour. As RVP demonstrate, this expectation is borne out. In considering the two potential sites that the wh-elements may surface in, the authors uncover an additional pattern.

More precisely, RVP document an experiment that emulates the natural production of the arrangements under consideration, in laboratory conditions. A preliminary, yet crucial result of this experiment is that informants were able to produce casually all the four different utterances, which provides independent evidence in favour of the existence of all the four types of wh-questions in MG. Another result pertains to the intonation contour that each configuration manifests, which I repeat below, starting from IQs and continuing with EQs.

The intonation structure of the wh-fronting IQs in (9a) has been produced by the informants of the aforementioned experiment as in (9b).

(9) a. Ke pja nomizis oti idhe?
and who-ACC think-2SG that saw-3SG
"And, who do you think s/he saw?"

b.



As we may observe, the pitch accent is a L*+H (as the rising continues to the next syllable after the stressed one), the phrase accent is a L-, which is realized on the next syllable from *pja* ('who'), and the boundary tone is a !H%, which is realized on the last syllable of the utterance. As also acknowledged by RVP, this pattern perfectly agrees with Arvaniti's (2001) pattern, who has extensively studied and described the intonation structure of the majority of MG wh-fronting IQs.

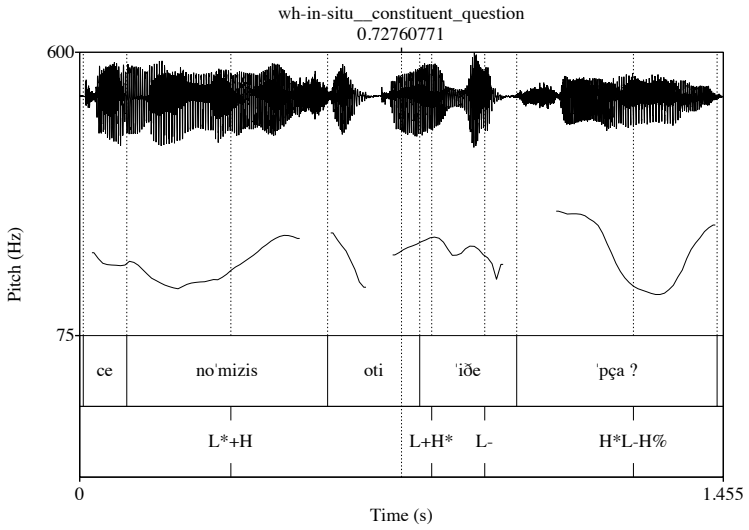
At this point, take notice of the fact that, in line with Arvaniti (op. cit.), the intonation contour of typical wh-fronting IQs remains constant, regardless of the length of the sentence. In particular, Arvaniti (op. cit.) shows that the only possible truncation would be at the beginning of the intonation contour, where the pitch accent, instead of L*+H, could be H*, if the wh-question starts immediately with a wh-element which is stressed on its first syllable.

Keeping the above clarifications in mind, witness the intonation contour of the wh-in situ IQ in (10b), which corresponds to the question in (10a).[14]

[14] See Alexopoulou & Baltazani (2012) for a first discussion of the intonation contour of wh-in situ IQs in MG.

(10) a. Ke nomizis oti idhe pja?
and think-2SG that saw-3SG who-ACC
"And, who do you think s/he saw?"

b.



As RVP point out, the melody of *pja* ('who'), at the right of the utterance, is a typical wh-fronting melody, that is, H* L- H% (as has been also described by Arvaniti, op. cit.). To put it simply, the same intonation contour that "expands" on the whole sentence in the wh-fronting IQ, in (9b), concentrates (or "shrinks") in a shorter surface vis-à-vis the wh-in situ IQ, in (10b).[15] Regarding the part of the utterance that precedes *pja* ('who'), in (10a), i.e., *ke nomizis oti idhe pja* ('and who you think that s/he saw'), RVP suggest that it constructs as an intermediate intonation phrase with two pitch accents, that is, L*+H & L+H*, and a L- phrase accent (cf., (10b)). As the authors argue, the most important phonetic cue in favour of the hypothesis that the preceding part is an intermediate intonation phrase is the pitch gap of more than 100 Hz between the end of the intonation contour of the preceding part and the beginning of the wh-element. Also, they note that the preceding intermediate intonation phrase could be taken to present a typical intonation contour of the pre-focus element.

Consider now the intonation contour of EQs, starting with the melody of the wh-fronting arrangement in (11a), as depicted in (11b).

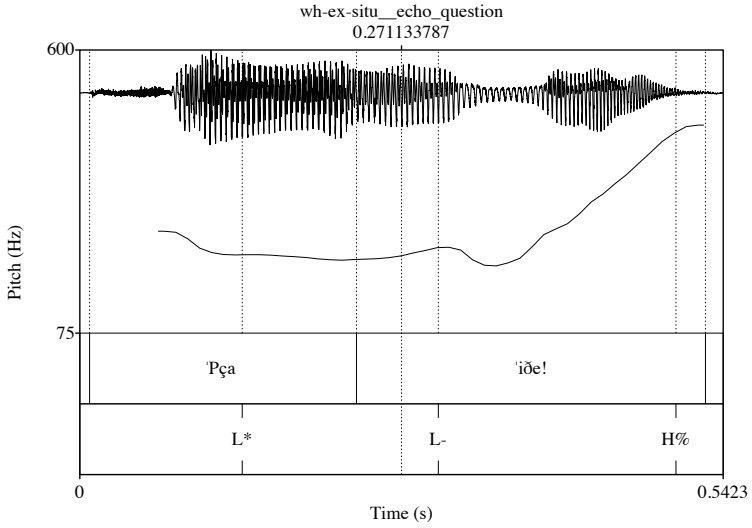
[15] Ineke Mennen (personal communication) comments that if a constituent follows the wh-in situ element, say a modifier like *akrivos* ('exactly'), as in (i) below, then, one expects that the intonation contour will acquire a more expanded shape.

(i) Ke nomizis oti idhe pja akrivos?
and think-2SG that saw-3SG who-ACC exactly
"And who do you think s/he saw exactly?"

Although I have not tested cases like (i), I share Ineke Mennen's intuition that the relevant melody will expand over *akrivos* ('exactly'), in a way similar to typical wh-fronting questions, where the intonation contour expands over the constituents that follow at the right of the wh-element.

(11) a. PJA idhe?
who-ACC saw-2SG
"S/he saw WHO?"

b.

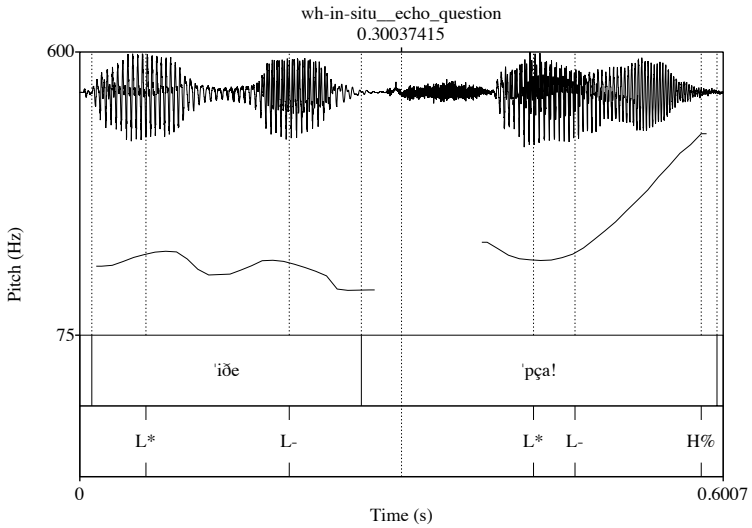


The echo question presents a sequence of L* L- H%. The L* is a low plateau pitch accent on the stressed syllable of *pja* ('who'), the L- appears as a low plateau on the next stressed syllable (in case there is one), and the intonation contour is completed with a really high H% during the last syllable of the utterance. Crucially, this intonation pattern is absolutely distinct from the intonation pattern of the wh-fronting IQ in (9).

As RVP show, if one compares the intonation contour of the wh-fronting EQ in (11), with that of its wh-in situ counterpart, exemplified in (12), one finds the same thing that has been found earlier in the case of wh-fronting and in situ IQs. More precisely, witness the wh-in situ EQ in (12a), with the melody in (12b).

(12) a. Idhe PJA?
saw-2SG who-ACC
"S/he saw WHO?"

b.



As we may observe, the intonation contour of a whole wh-fronting EQ (cf., (11b)) appears exactly the same on the rightmost wh-element of the wh-in situ EQ. This is shown in (12b), which is described as L* L- H%, since the pitch accent is a low plateau, and the last syllable ends up really high. Again, the part of the intonation contour that precedes the in situ wh-element (i.e., *pja* ('who')) forms an intermediate intonation phrase, which is described as L* L-. The most important phonetic cue for realizing this intermediate intonation phrase is the pitch gap of more than 60 Hz between the end of the intonation contour of the preceding part and the beginning of the wh-element.

Let us put together the empirical evidence presented in this section. As we have seen, the "IQ vs. EQ" distinction appears to have no bearing on distribution. So, regardless of the IQ or EQ reading, wh-fronting and in situ instances may surface in matrix or embedded clauses, while only the fronting occurrences are constrained by islands. On the other hand, IQs and EQs have clearly distinct interpretation and prosody. Specifically, IQs have (non-)exhaustive quantification and present a L* +H (or H*) L- !H% intonation contour, while EQs have no quantification (individual reading), and present a L* L- H% melody. What is more, depending on the surface linear arrangement of the wh-element, certain interpretational and intonation effects obtain. That is, the quantification of wh-fronting IQs is non-exhaustive, while that of wh-in situ IQs is exhaustive, and while the intonation contour of wh-fronting IQs and EQs spreads on the whole utterance, the corresponding melody of wh-in situ counterparts shrinks on the wh-element.

3 The analysis

In the light of the MG facts summarized above, two questions arise that I wish to examine in turn. One question is how the two constructions are generated, while another question is how the two readings are disambiguated. I begin by considering the computation of the two strategies (section 3.1), also assuming (aspects of) RVP's syntactic account, while issues pertaining to interpretation enter the discussion at the end (section 3.2).

3.1 Computing wh-forms

Before I consider the MG facts, it is appropriate to reflect on how typical wh-fronting and in situ arrangements are computed, following current Minimalist assumptions. Preliminarily, notice that I shall concentrate on the parts of the constructions that are most relevant for the present discussion (a policy to which I subscribe hereafter), also leaving unnecessary technical details aside. So, as of Chomsky (2000), English wh-fronting questions of the kind in (13) are computed as follows.[16]

(13) $[_{C}$ Which student did $[_{I}$ you (did) $[_{v/V}$ see ⟨which student⟩]]]?

Which student externally merges in the predicate/V-domain, where it acquires a ϑ-role by being construed as the internal argument of the predicate *see* (for simplicity, I collapse the vP-shell).
Being a Probe that seeks for a suitable Goal (for purposes of feature matching, not to be discussed further), C agrees with the wh-element. Furthermore, C projects with an EPP-feature (hence, generalizing the Extended Projection Principle), which triggers copying of the wh-element and inter-

[16] For concreteness, it should be mentioned that, in what follows, I abstract away from the framework of Phases pursued in Chomsky (2000), onwards. As far as I am concerned, the Phase-theoretic set of assumptions is not directly related to the present discussion, although I hasten to note that everything that will be said in this and the following section may be restated in such terms.

nal merger with C (displacement). At LF, by virtue of its association with C, the wh-element translates to an operator, while the relevant copy that resides in the V-domain (as in (13), copies of extracted elements will be enclosed in angle brackets, a notation I adopt from Starke 1997) is deleted at PF (see Chomsky 1995a), and at LF, it is converted to a variable bound by the operator (see Fox 2002). In short, Agree forms the operator-variable wh-chain, while displacement yields the wh-fronting configuration.

Turning to typical wh-in situ constructions, witness (14), which is an example from Japanese, repeated from Watanabe (2003: 520, (1)).

(14) [Taroo-ga nani-o te-ni ireta koto]-o sonnani okotteiru no?
Taro-NOM what-ACC obtained fact-ACC so much be-angry Q
"What are you so angry about the fact that Taro obtained?"

In the scope of Chomsky's account of English wh-fronting (given above), more recently, Watanabe (2006) treats wh-in situ questions, like (14), as an instance of Agree between the in situ *nani-o* ('what') and the Q-particle *no* that surfaces in C (note that Japanese is a head-final language). The author argues that C does not come with EPP-like properties that would trigger copying and Internal Merge (displacement) of the wh-element, as opposed to English.[17] Thus, Agree forms the necessary wh-chain between *nani-o* ('what'), which provides the variable, and C, which provides the operator. In short, the difference between typical wh-fronting and in situ constructions boils down to this: unlike wh-in situ, wh-fronting assumes displacement of the wh-element to C. Other than that, Agree forms the relevant operator-variable wh-chains in both cases.

Within the above set of assumptions, it seems reasonable to assume that MG may feature both wh-strategies exemplified above. Indeed, I suggest, also building on RVP's syntactic account, that MG wh-in situ is open to an Agree/quantificational dependency akin to typically wh-in situ languages, like Japanese.[18] Both constructions are schematized in (15).

(15) a. [$_{C}$ Pjon [$_{I}$ idhes [$_{v/V}$ <pjon>]]]?
who-NOM saw-3SG
"Who did you see?"

b. [$_{C}$ [$_{I}$ Idhes [$_{v/V}$ pjon]]]?
saw-3SG who-NOM
"Who did you see?"

As we may observe, the direct object *pjon* ('who') may merge with either C (cf., (15a)) or v (cf., (15b)), yielding either a wh-fronting or a wh-in situ configuration respectively.

A similar reasoning extends to wh-in situ subjects. Consider (16), where *pjos* ('who') surfaces in v, and is subsequently construed with C via Agree.

[17] Watanabe (2006) invokes a "pied piper" feature in the place of Chomsky's (2000) EPP feature, which is why I say "EPP-like" properties. Since, for purposes of the present discussion nothing hinges on this issue, I take Watanabe's "pied-piper" feature to reduce to Chomsky's EPP. Yet, in the interest of clarity, I should note that, in the context of Watanabe's analysis, the "pied-piper" feature marks the category to be copied by pied-piping. Strictly speaking, satisfaction of EPP does not necessarily trigger pied-piping, since EPP can be satisfied by feature-movement (at least, this is the assumption up to Chomsky 1995a; but see Chomsky 2004 for abandonment of this hypothesis). I thank an anonymous reviewer for bringing this issue to my attention.

[18] See also Manzini & Savoia (2011) for the same approach to wh-in situ in (dialects of) Italian.

(16) [$_{C}$ [$_{I}$ Efije [$_{v/V}$ pjos]]]?
left-3SG who-NOM
"Who left?"

MG is a "pro-drop" language, which may feature a VS(O) word order, as well. The details of the VS(O) pattern will not concern me here, and I refer the reader to Philippaki-Warburton (1987), Tsimpli (1990), Alexiadou & Anagnostopoulou (1998, 2001), and Roussou & Tsimpli (2006), among others, for extensive cross-linguistic discussions, including MG. What is of present interest is the fact that the interrogative *pjos* ('who') may surface in its thematic position, as is typically the case with in situ subjects, in grammars that instantiate the pro-drop option. This brings us to the following point.

In the context of "non-pro-drop" languages, such as English, we do not expect to find wh-in situ subjects, in as much as we do not generally find in situ subjects (for evidence that English may also attest wh-in situ arrangements, see section 1). This is exemplified in (17).

(17) a. And you saw who?
b. * And saw who?

Although (17a) is grammatical with the object *who* in situ, (17b) is not, if the subject *who* is in situ.

The fact that wh-elements, when in situ, surface in their thematic positions, has an interesting consequence with respect to the interpretation of wh-adjuncts. Consider (18).

(18) a. Ke pos efijes toso noris apo to parti?
and how left-2SG such early from the party
(i) "How did you leave the party that early?"
(ii) "How come you left the party that early?"
b. Ke efijes toso noris apo to parti pos?
and left-2SG such early from the party how
(i) "How did you leave the party that early?"
(ii) #"How come you left the party that early?"

The fronting question in (18a) is about "the way you left the party," where *pos* ('how') is construed with the event denoted by the predicate *efijes* ('left') (cf., (18a-i)). This question also has a secondary reading, which is roughly about "the fact that you left the party" (cf., (18a-ii)), and becomes more natural under the possible continuation *You had told me you'd stay till late*. Here, *pos* ('how') is associated with the meaning of the whole proposition. In Starke's (2001) terminology, the fronting *pos* ('how') may be interpreted as either "event-related" or "fact-related". Turning to the in situ counterpart (18b), only the event-related reading surfaces (cf., (18b-i)), while the fact-related interpretation is infelicitous (cf., (18b-ii)); as we may recall, the sign "#" shows inappropriateness to context), and a possible continuation of the form *You had told me you'd stay till late* is ruled out. This means, in turn, that *pos* ('how') in (18b) is not construed with the whole proposition. If we assume that event-related wh-adjuncts may be associated with (generalized) ϑ-roles (see Rizzi 1990, and Starke 2001, for relevant discussions), *pos* ('how') in (18b) is construed with the predicate, and not with the whole proposition, because wh-in situ elements surface at their thematic positions, as

presently argued. This becomes clear in (19).

(19) a. Pos ke efijes toso noris apo to parti?
how and left-2SG such early from the party
"How come you left the party that early?"

b. * Efijes toso noris apo to parti pos ke?
left-2SG such early from the party how and
"How come you left the party that early?"

The string *pos ke* ('how come'), which assumes only the fact-related reading, is grammatical if it fronts (cf., (19a)), but not if it surfaces in situ (cf., (19b)).

Starke (2001) considers English data of the form (19a), and proposes that wh-adjuncts unrelated to predicates are base-generated in the left periphery of the clause. Independent support to Starke's approach provides the ungrammaticality of (19b), under the current view. *Pos ke* ('how come') does not modify V in the way V-internal adjuncts are expected to. Here, I do not wish to consider wh-adjuncts any further, since this would lead us to far afield. So, in the light of the present discussion, I assume that wh-in situ adjuncts, such as *pos* ('how'), *pote* ('when'), and *jati* ('why'), pick out only event-related readings that appear low in the structure, because wh-in situ surfaces in its argument position. In contrast, wh-fronting adjuncts may give rise to either propositional or predicate-related interpretations. Consequently, if the propositional modification is somehow forced, as in (19), wh-in situ is ungrammatical (see Grohmann & Papadopoulou 2011 for a similar point).

Long-distance wh-questions fit the picture, as well. This is exemplified in (20), which is enough to illustrate the point.

(20) [$_{C}$ [$_{I}$ Ipan [$_{C}$ oti edhose [$_{v/V}$ ti]]]]?
said-3PL that gave-3SG what
"What did they say that see he gave?"

Under the present view, *ti* ('what') surfaces inside v, and is construed as the internal argument of the embedded predicate *edhose* ('gave'). As we may observe, the embedded C is not (and, cannot, after all) assume interrogative properties, in virtue of the declarative *oti* ('that')): as is well known, at least as early as Rizzi (1990), the same C may not feature interrogative modality and declarative force, simultaneously. So, *ti* ('what') directly agrees with the matrix C, and is assigned the relevant scope.

Considering islands, the present approach predicts that MG wh-fronting may behave differently from its wh-in situ counterpart, since wh-elements occupy different positions in each construction. This prediction is borne out. Now, although MG wh-in situ is an Agree/quantificational dependency that is immune to islands, this island-amnesty need not generalize. More precisely, on the standard assumptions that (un)grammaticaly with the same island types may vary across languages (see, e.g., Hofmeister & Sag 2010, and Sprouse et al. 2011, Sprouse & Hornstein 2013), and that LF-construals (which subsume chains created by "movement") may be constrained by islands (see, e.g., Cinque 1990, Szabolcsi & Zwarts 1993, Beck 1996, Honcoop 1998, Brody 2003, Vergnaud & Zubizarreta 2005, and Szabolcsi 2006, among others), we expect that wh-in situ constructions may be constrained by islands. And this is, in fact, what we get, in the context of both typically wh-in

situ languages, like Japanese (see, e.g., Watanabe 2006), and typically wh-fronting languages with in situ arrangements, like French (see, e.g., Matthieu 1999).[19]

At this point, it is important to keep in mind that irrespectively of where the wh-element is realized (fronting or in situ), there are actually two distinct readings that each configuration may assume, i.e., IQ or EQ. As is also pointed out by RVP (p. 477), this suggests that displacement does not alter the core interpretation relevant at LF. On the other hand, displacement has an effect on PF, since the site that the wh-element is realized differs. In fact, based on this reasoning, RVP go as far as to propose that the "EPP-feature" that drives displacement is nothing more than an instruction for lexicalization, and as such, not necessarily a syntactic feature. From this perspective, there should be only one type of Merge, i.e., External, while Internal Merge should not be a distinct operation of the Grammar, but a descriptive device (at best), having no psychological import (see also Manzini & Roussou 2011, and Vlachos 2012, for similar argumentation). The issue of whether there should be a narrow syntactic sense of displacement, and if not, what its interpretive equivalent should be, is tangential to our current concerns.[20] What is crucial for present purposes is the fact that, irrespective of the operation that may form each construction (displacement or no displacement), syntax does not encode the distinction between IQs and EQs. This is simply because each construction may yield either reading. In other words, the hypothesis pursued here is that syntax generates "questions" that are ambiguous between "information-seeking" and "echo", and this hypothesis fits quite well with the corresponding evidence from distribution.

On a related issue, the ambiguity under consideration would be only superficially resolved if each interpretation was attributed to a distinct feature, say IQ and EQ, registered in syntax (perhaps, in the spirit of Sobin 2010, among others). The reason is that such line of theorizing would simply beg the question, leaving the striking syntactic similarities between IQs and EQs to chance. So, if syntax does not distinguish between the two readings, then who does? This is the issue I take up next.

3.2 Disambiguating wh-meanings

As we may recall from the summary of the data examined in section 2, a major observation is that each interpretation corresponds to a different prosody. To repeat for convenience, the melody of IQs is L* +H (or H*) L- !H%, while that of EQs is L* L- H%. Here, I wish to capitalize on this observation, and suggest that PF distinguishes between the IQ and EQ readings at LF, by assigning clearly distinct intonation contours (a view prefigured in RVP). In more detail, the PF-LF pairing I have in mind can be schematically captured as in (21).

(21) a. L* +H (or H*) L- !H% (IQ) = (non-)exhaustive quantification.
  (i) Spreading contour = non-exhaustive quantification.
  (ii) Shrinking contour = exhaustive quantification.
 b. L* L- H% (EQ) = no quantification (individual reading).
  (i) Spreading/Shrinking contour = no quantification.

[19] For insightful comments regarding wh-in situ and islands, I would like to thank an anonymous reviewer, who is not, however, responsible for the view presently advocated.

[20] On more general grounds, the "non-movement" perspective of MG wh-questions, espoused more recently by RVP (and Vlachos 2012), has many precursors, proffered both inside and outside the generative framework (for a historical excursus, see Culicover & Jackendoff 2005 and references cited therein).

(21) captures the "fluctuation" in the interpretation of MG fronting and in situ wh-elements as a direct consequence of the corresponding melodies. As in (21a), the IQ melody translates to non-exhaustive quantification, if it spreads on the whole wh-fronting utterance (cf., (21a-i)), and to exhaustive quantification, if it shrinks on the in situ wh-element (cf., (21a-ii)). On the other hand, the EQ melody blocks quantification, so we expect that no differences should emerge from the spreading vs. shrinking pattern, and this expectation is borne out (cf., (21b-i)). In short, the interpretation of MG wh-questions, as is currently conceived, forms a "scale of quantification", so to speak, starting from non-exhaustive quantification (wh-fronting IQs), to exhaustive quantification (wh-in situ IQs), to no quantification (EQs).

The fact that a wh-element may pick out any of the three readings above means that none of these interpretations are intrinsically associated with wh-elements. And if this is the case, then we expect that IQs and EQs have the same distribution, as is indeed what happens. Moreover, it should not escape one's attention that the aforementioned fluctuation in meaning is not only due to the impact of prosody on interpretation, but also emerges from the way syntactic structure affects prosody. More precisely, as is standardly assumed in the relevant literature, the wh-element in MG is the most prominent word of the utterance (e.g., Baltazani 2002). For example, Arvaniti & Ladd (2009) argue that the wh-element is the nucleus of the question. Alexopoulou & Baltazani (2012) show that the nuclear stress aligns with the wh-element, either the latter is fronted or in situ, and the rest of the utterance is either post- or pre-nuclear respectively. Given these clarifications, the abovementioned spreading and shrinking patterns indicate that prosodic structure is not oblivious to syntactic structure—so, syntax is not overridden—since whatever pattern is applied at PF depends on the position of the wh-element. Conversely, the spreading and shrinking patterns provide independent support to the current view of the syntax of wh-constructions, because it is prosodically clear that fronting and in situ wh-elements surface in distinct positions in the clause structure: in the C and V-domain respectively. In other words, prosodic facts (may) point at the lexicalized positions in a certain construction.

The picture drawn up to this point, vis-à-vis the interaction between prosody and interpretation, is part of the story and not the whole story. What is missing from this picture is a more fine-grained way of capturing the pairing between the relevant prosodies and interpretations; hence, a more precise account of the way the different interpretations, i.e., (non-)exhaustive and individual readings, are represented at LF. This is the task I turn to next, by adopting Vergnaud & Zubizarreta's (2005) (hereafter, V&Z) formal approach to French wh-questions, and adapting it to MG. To do so, first, I present V&Z's system (concentrating on these aspects of their analysis that are most relevant for our discussion, thus leaving much of their formal machinery aside), and then apply this system to MG.

As is also the guiding intuition behind the present approach to the interpretation of MG wh-questions, V&Z side with the relevant semantics literature which assumes that the (non-)exhaustive quantification is not an inherent property of (wh-)questions (see, e.g., Heim 1994). And, even more interestingly for our discussion, V&Z's intuition is that this property of, (at least) as regards certain instances of French wh-fronting and in situ questions, varies in tandem with certain prosodic patterns (see Baunaz 2011, for a similar conclusion, regarding French). The prosodic patterns that V&Z observe are not immediately relevant to present concerns. What is important is the formal system that the authors develop in order to capture the (non-)exhaustive quantification of (French) wh-questions. To this system I turn now.

By extending Chomsky's (1976a,b) and Jackendoff's (1972) early approaches to presupposi-

tion and focus, V&Z propose that there are actually two types of presuppositions/foci: one is *inclusive/informational* (indicated with a lower case *i*), while the other is *contrastive* (notated with a lower case *c*). After examining these two types of presuppositions/foci in the context of utterances with explicit presuppositions/foci (not to be discussed here), V&Z concentrate on utterances with implicit presuppositions/foci. Instances of the latter are wh-questions, of the kind exemplified in (22a), with the LF representation in (22b), explained shortly after (modeled on V&Z's (37) & (38) respectively).

(22) a. Who did John see?
b. (John Past see someone) OR$^{\delta}$ (John Past see someone else), $\delta = i, c$.

Following familiar semantic assumptions that the semantic contribution of a wh-question is a set of alternative propositions (see, among others, Hamblin 1973, Karttunen 1977, Berman 1991, and Rooth 1985, 1992), V&Z capture the presupposition and focus of a wh-question as a(n) (iterative) disjunction between alternative propositions. And, by assuming that the focus of a question coincides with its presupposition, V&Z propose that the logical structure (LF representation) of a wh-question like (22a) is that given in (22b), where a logical operator OR represents the disjunction, and is flanked by two disjuncts, each being an alternative proposition. The term "Past" is the LF of tense, "someone" (and "someone else") is the LF of the quantifier *who*, while the superscript δ indicates that the disjunctive operator OR is unspecified. Depending on the relevant prosody, OR can be specified as either *i* (inclusive/informational) or *c* (contrastive). The full definition of OR is given in (23) (fashioned over V&Z's (22), (23), and (26)), and is summarized right after.

(23) a. OR$^{\delta}$ $=_{\text{def}}$ "inclusive/informational *or*", "contrastive *or*" (*i*,*c*).
b. OR^{i} $=_{\text{def}}$ "inclusive/informational *or*".
c. OR^{c} $=_{\text{def}}$ "contrastive *or*".

The logical operator OR is a(n) (iterative) disjunction. As in (23a), OR is unspecified (δ), and may be either inclusive/informational (*i*) (cf., (23b)), or contrastive (*c*) (cf., (23c)).

With the above definitions in place, V&Z consider the two French wh-questions in (24a) and (24c) (among others). The wh-fronting question in (24a) has a non-exhaustive interpretation, while the interpretation of the wh-in situ counterpart in (24c) is (strongly) exhaustive, under a certain melody.[21] As V&Z show, corroborating evidence for these two readings comes from the fact that a cleft sentence of the form "*It is Peter that Marie danced with*" may serve as a possible continuation for the in situ wh-question, but not for the fronting one. So, using the machinery defined in

[21] While with a different melody, the interpretation of the wh-in situ question is non-exhaustive, on a par with that of the wh-fronting question in (24a). It goes without saying that French wh-in situ questions may differ prosodically from MG wh-in situ IQs. In this respect, it is worth pointing out that RVP's experiment, documented presently in section 2.3, can neither verify nor exclude the possibility that MG, like French, may prosodically distinguish between two (or, more) types of wh-in situ IQs (or, even EQs). For example, Alexopoulou & Baltazani (2012) show that the wh-in situ (IQ) melody may be either that of a standard wh-fronting IQ (as reproduced by RVP's experiment), or that of a declarative utterance, with a falling intonation. In each case, the nuclear stress aligns with the wh-element, a result also repeated by RVP's experiment. The prosodic similarities and differences between MG and French wh-questions, no matter how interesting they might be, are orthogonal to our present concerns. What is important for our discussion here is that the (non-)exhaustive interpretation of wh-questions in both languages varies in tandem with the corresponding prosodies manifested on each utterance.

(23) above, V&Z represent the LFs of the two questions in (24b) and (24d) respectively ((24) figures in V&Z's (63) through (66)).

(24) a. Avec qui (est-ce-que) Marie a dancé?
"With whom (did) Marie dance?"
b. (Marie Past dance with someone) OR^{i} (Marie Past dance with someone else).
c. Marie a dancé avec qui?
Intended non-EQ: "Marie danced with whom?"
d. (Marie Past dance with someone) OR^{c} (Marie Past dance with someone else).

As we may observe, the wh-in situ question with the exhaustive reading (cf., (24c)) is a contrastive disjunction (cf., (24d)), while its wh-fronting counterpart with the non-exhaustive reading (cf., (24a)) is an inclusive/informational disjunction (cf., (24b)).

More generally, V&Z propose the pairing in (25) (modeled on theirs (62)).

(25) a. non-exhaustive quantification = inclusive/informational presupposition/focus (OR^{i}).
b. exhaustive quantification = contrastive presupposition/focus (OR^{c}).

As we have already mentioned, according to V&Z, each interpretation corresponds to a distinct prosody. So, (25) actually defines a mapping between the relevant intonation contours (PF) with the corresponding interpretations (LF).

Now, considering MG within the context of the above discussion, I want suggest that a similar mapping takes place in the case of IQs (I shall return to EQs shortly). Witness (26), along with their corresponding LFs.

(26) a. Me pjon xorepses?
with whom danced-3SG
"With whom did you dance?"
b. (You Past dance with someone) OR^{i} (You Past dance with someone else).
c. Xorepses me pjon?
danced-3SG with whom
"With whom did you dance?"
d. (You Past dance with someone) OR^{c} (You Past dance with someone else).

The wh-fronting IQ in (26a) has inclusive/informational presupposition/focus (cf., (26b)), while the presupposition/focus of the wh-in situ IQ in (26c) is contrastive (cf., (26d)). That is, *me pjon* ('with whom') in both (26a) and (26c) selects a member from a set of alternatives, but only the wh-element in (26c) entails the exclusion of the other members of the set.

Turning to EQs, recall that the relevant reading is what we have called individual, meaning that the wh-element does not presuppose any set of alternatives, but maps to a single value. In vir-

tue of the effect that prosody may have on interpretation, I propose that the prosody of EQs, fronting and in situ, does not facilitate—or, better, blocks—the disjunctive interpretation (that is, alternative-set denotation), standardly contributed by wh-questions. More precisely, consider (27), which combines two EQ wh-constructions.

(27) a. ME PJON xorepses (ME PJON)?
with whom danced-3SG with whom
"WITH WHOM (did) you dance(d) (WITH WHOM)?"
b. You Past dance with someone.

Me pjon ('with whom'), either fronting or in situ (cf., (27a)), has the presupposition/focus given in (27b), which lacks the logical operator OR. Since OR is the quantification of wh-elements, then EQs lack quantification whatsoever, and this, in turn, is caused by the relevant prosody assigned to EQs.

In short, following V&Z's formal account of (non-)exhaustivity, as summarized in (25), we can fill in the missing parts of the picture drawn in (21), as in (28).

(28) a. L* +H (or H*) L- !H% (IQ) = (non-)exhaustive quantification =
inclusive/informational/contrastive presupposition/focus (OR^{δ}).
(i) Spreading contour = non-exhaustive quantification =
inclusive/informational presupposition/focus (OR^{i}).
(ii) Shrinking contour = exhaustive quantification =
contrastive presupposition/focus (OR^{c}).
b. L* L- H% (EQ) = no quantification = ~~OR~~.
(i) Spreading/Shrinking contour = no quantification = ~~OR~~.

To repeat for convenience, (28) conceptualizes the different interpretations assumed by MG wh-fronting and in situ IQs and EQs as an effect of prosody on interpretation. As in (28a), IQ melodies correspond to (non-)exhaustive quantification, that is, an unspecified presupposition/focus structure, which is represented at LF as a(n) (iterative) disjunction among sets of alternative propositions, headed by a logical operator OR^{δ}. This operator can be specified as either inclusive/informational (OR^{i}) (cf., (28a-i)), or contrastive (OR^{c}) (cf., (28a-ii)). If inclusive/informational, the wh-element is fronted and the IQ intonation contour spreads on the whole utterance, while if contrastive, the wh-element surfaces in situ and the IQ intonation contour shrinks on the wh-element. On the other hand, either spreading or in situ, the EQ melody cancels the quantification typically associated with wh-elements (indicated here with a double strikethrough on ~~OR~~).

On more general grounds, and before this section comes to an end, let as make two final comments. First, I should mention that the proposal made here that intonation may disambiguate an otherwise ambiguous utterance incarnates a recurrent intuition which can be traced back to at least as early as Jespersen (1933/2006). More precisely, Jespersen argues that sentences like *I can't do anything* may have either the default negative interpretation "I can't do anything", or the positive reading "there are some things which I can do", depending on how the polarity item *anything* is intonationally marked. Likewise, more recently, Sportiche (1998: 408) claims that "[i]ntonation plays a disambiguating or interpretive role in many constructions and in particular in other kinds of questions…". And, what is even more interesting for the present discussion, Sportiche notes that two of these questions are "…in situ normal wh-questions versus echo questions [in French]…"

(1998: 417, 46ff).

The second point that I wish to make has already been raised from a slightly different perspective at the end of section 3.1, and concerns the possibility of a more syntactically-oriented alternative to the current analysis; that is, an alternative which stimulates (or, triggers) the relevant prosodic structures of IQs and EQs via syntactic means. Indeed, a line of theorizing exercised regularly (see, e.g., Cheng & Rooryck 2000, Sobin 2010, among others) is to assign the status of morphosyntactic features to prosodic properties, and to treat the latter as regular features that require some sort of licensing (perhaps, on a par with the agreement features of verbs). I hasten to note that I side with Chomsky (1995b: 5ff), who argues that lexical items enter syntactic computations without carrying information about syllabic and intonational structure, nor "…much of the output of phonetic matrix." So, an intonation-oriented feature with morphosyntactic properties would not only unnecessarily describe, but also redundantly replicate, in morphosyntactic terms, what should, perhaps, be attributed to the PF component of the Grammar: that PF may be equipped with certain intonation patterns (or, perhaps, "meaning dimensions/codes", in the spirit of Gussenhoven 2002, 2004), which are not regulated by syntax proper.

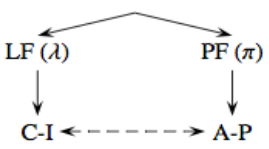
To put the discussion of this section together, we have seen that IQ and EQ wh-constructions map to the same fronting and in situ configurations. From this, we reached the conclusion that syntax does not encode the distinction between IQs and EQs, but generates interrogatively marked wh-structures ("Questions"). IQ and EQ readings are disambiguated via distinct intonation contours at PF, each of which has a corresponding translation at LF. An additional conclusion is that syntax does not control, but appears to affect the prosody of wh-constructions, in terms of the positions realized in a wh-chain (fronting or in situ). More generally, under the current line of theorizing, it becomes clear that IQs are no less relevant for intonation than EQs, and EQs are no less relevant for syntax than IQs. Hence, I agree, in part, with Cooper's (1983) intuition that EQs are not strictly speaking syntactic phenomena, as well as, with Carnie's (2006: 341) claim that EQs are licensed by intonation and stress. Obviously, I do not share Cooper's (op. cit.) idea (as cited by Parker & Pickeral 1985: 337) that "…the grammatical rules of language should not generate them [EQs]" (see also section 1 of the present paper).

4 The theoretical import(ance)

If the reasoning so far about the direct mapping between prosody (PF) and interpretation (LF) is on the right track, a theory-internal issue arises, whose most pertinent consequences I want to explore in this section.

To begin with, the grammatical system proposed by the Minimalist program is typically conceptualized as a(n) (inverted) "T-Model", of which the aspects that are directly relevant to the present discussion are depicted in (29), and described shortly after (this illustration suffices for present purposes, but see Chomsky 1995a,b, 2001, 2004, 2008, for a more fine-grained approach).

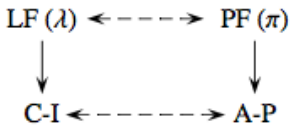
(29) *The Minimalist T-Model of the Grammar* (*standard*):



The T-Model predicts that syntactic procedures generate (hierarchically articulated) linguistic structures (not illustrated in (29)), which are spelled-out to the interfaces LF and PF, and are associated with a meaning λ and a form π respectively. Each interface is accessed by a performance system (see also Berwick et al. 2013): a system of thought (Conceptual-Intentional), which is associated with the internalization of linguistic structures, and a sensorimotor system (Articulatory-Perceptual), which is related to the externalization of linguistic structures. Crucially, the T-Model excludes the possibility that the two interfaces interact with each other. As Chomsky (1995b: 5ff) notes, this is not "…of course, to deny that a full theory of performance might involve operations that apply to the (π, λ) pair". Under the standard assumption that C-I and A-P are performance systems, I take Chomsky's reasoning to mean that "a full theory of performance" might be grounded on the interaction between C-I and A-P, which is what the left-right arrowed line in (29) is tentatively taken to depict (a rough illustration but sufficient for our purposes).

The current approach to MG (and French) wh-questions, however, calls for a reconceptualization of the standard T-Model, in the following terms.

(30) *The Minimalist T-Model of the Grammar* (*updated*):



Since the prosody (PF) of the wh-questions considered so far directly correlates with (or, better, affects) their semantics (LF), by operating directly on the logical structure of the disjunction, then it must be the case that LF "sees" PF (and vice versa; apart from V&Z, see Brody 1995, Culicover & Jackendoff 2005, among others, for similar conclusions). This is illustrated with the left-right arrowed line mediating the two interfaces in (30). In other words, the updated T-Model in (30) does not counter-argue Chomsky's previously cited claim that "a full theory of performance" might involve a relation between C-I and A-P (if this is what Chomsky really implies). What (30) actually alludes to is that "a full theory of competence" might involve a direct interaction between PF and LF, as well, and this is a conclusion corroborated by the current approach. Let us clarify this conclusion further.

The distinction between *competence* and *performance*, in its modern linguistic acceptation, is firstly articulated in Chomsky (1964, 1965), and is actually a methodological distinction that seeks to explain what a linguistic theory is (and should) be about. As stated in Chomsky (1965: 4), competence is concerned with "…the speaker's-hearer's knowledge of his language," while performance pertains to "…the actual use of language in a concrete situation". In this respect, as Pylyshyn (1973) argues, competence is a term that characterizes a theory (a linguistic theory in our case) which seeks to explain the way a conceptual system (e.g., natural human language) is represented in the mind. On the other hand, performance is a term which refers to a theory that is concerned with the way this system is put to use in a moment-to-moment situation (see also Miller 1975 for a summary of the various restatements of the "competence vs. performance" distinction). Within this context, the T-Model in (30) (and (29)) defines a theory of competence, since it describes the innate generative capacity of an idealized speaker/hearer (her "Grammar") to produce/understand an infinite number of sentences. Certainly, this process of production/understanding interacts with memory, time, space (Chomsky 1965: 4), and more generally with factors that are outside

Language. And if so, this interaction is a matter of performance, and hence, falls outside the scope of the T-Model of the Grammar. So, the fact that, as currently proposed, syntax computes "wh-interrogative" constructions, while LF and PF distinguish between what we have descriptively coined "information-seeking" from "echo" interrogatives concerns operations that fall within the T-Model, and thus, the theory of linguistic competence.

Following the above train of thought, let us end this section by emphasizing on a related issue. As presently argued, an echo question is the product of the interaction between intonation (PF) and interpretation (LF). This is a matter of linguistic competence. Of course, there may be various reasons one may utter an echo question (see, e.g., Fiengo 2007). For example, an echo question of the form "*you bought* WHAT?" may show either disbelief, or astonishment, or anger, or irritation, and so on, for the purchased object. But, these "uses" (or, speech-acts, in more technical terms; see Austin 1962) are a matter of linguistic performance. Likewise, the fact that wh-in situ alternatives are attested in wh-fronting languages is an issue that concerns a theory of competence. On the other hand, the fact that wh-in situ alternatives may not only be used as "genuine" questions, but also as so-called "quizmaster" questions (see, e.g., Fiengo 2007), where the subject who makes the question already knows the answer (e.g., in TV shows like "Who Wants To Be A Millionaire") is something that concerns a performance model. To put this issue differently, the use of a wh-in situ form as "quizmaster" question may raise doubts about treating this form in terms of syntax. However, it should not escape one's attention that: a) wh-fronting forms may also be used as "quizmaster" questions, although no one has suggested treating (MG) wh-fronting questions outside syntax, and b) the mere fact that a wh-in situ alternative is grammatical (and, not just "(pragmatically) acceptable") verifies that syntax predicts this form (it is in the untutored linguistic knowledge of the speaker/hearer), no matter how this form may be used in actual linguistic practice.

By way of summary, we may say that several empirical evidence revolving around the distribution (syntax), interpretation (LF), and intonation (PF) of MG wh-questions, points at an alternative division of labour between syntax and the interfaces, which diverges from the one that is standardly assumed. This separation of tasks has two facets. First, it argues that syntax registers parts of the relevant form-meaning associations, so that the mapping between form and meaning is not "arbitrary", but is regulated by information already encoded in the corresponding structures. In this sense, syntax maintains its role as a mediator between the two interfaces, as is typically the case. The other strand of the "workload" falls on the interfaces, which decode the information provided by the syntactic output, and "fill in" the essential "missing" parts of meaning. In this respect, and unlike the currently exercised wisdom, the interfaces acquire a more "active" role, so to speak, in the process of interpreting a syntactic object, since they do not only read-off this object, but also talk to each other. A system of this type invites a further conjecture, which is tentatively articulated here since it requires extensive elaboration in order to be considered seriously: if the line of theorizing in the present paper is correct, then the fact that syntax does not (need to) encode every aspect of form-meaning associations may turn out to be the standard scenario, once the role of the interfaces as "interpreters" of linguistic structures is put into perspective.

5 Conclusion

In the context of typically wh-fronting languages (e.g., English), a tacit (hypo)thesis has been that wh-fronting arrangements translate to information-seeking questions (IQs), while wh-in situ ones to echo questions (EQs). Yet, Modern Greek, which is a typically wh-fronting language, may feature

each wh-construction with either interpretation. This empirical picture raises the question as to what extent the syntax of each construction encodes the relevant interpretations. By discussing evidence from distribution, interpretation, and intonation, of Modern Greek wh-fronting and in situ IQs and EQs, this paper argued that syntax generates "Questions", which are ambiguous between "information-seeking" and "echo". The two readings are disambiguated via distinct intonation contours at PF, which translate to certain logical structures at LF. From this perspective, PF talks to LF (and vice versa). This assumption contrasts sharply with the standard organization of the Grammar, as viewed by the Minimalist program, which says that the two interfaces do not "see" each other. In fact, the present view is that not only do the two interfaces interact with each other, but also this interaction may turn out to be the default scenario.

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