

**MULTIPLE QUESTIONS IN FRENCH AND IN HUNGARIAN
AN LFG ACCOUNT**

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Abstract

In this paper we propose an LFG account of multiple questions in French and in Hungarian. It will be argued that (together with clausal coordination) six main types of multiple questions can be identified in the two languages, which can be associated with different readings. Multiple questions in which both question words are in the same clause can be ambiguous between a pair list and a single pair reading, whereas in the case of clausal coordination, which is analyzed as an elliptical structure, only the single pair reading is available. We identify some problems, like that of two preverbal question words in Hungarian, or the ambiguity concerning D-linkedness in French. We then propose an LFG analysis in which information structure is projected at a different level of analysis, containing semantic information as well, and in which the different question words can belong to different sets, *TOPIC* and *FOCUS*, respectively.

1 Introduction

In this paper I discuss multiple questions in French and in Hungarian. Multiple questions have received much attention in the literature, mostly in transformational frameworks. The main challenge was to account for the different types occurring in languages, such as multiple fronting in Bulgarian or Romanian, single fronting in English, or *in situ wh*-questions in Chinese. The aim of the present paper is twofold. First, it concentrates on two typologically different languages and attempts to provide a coherent analysis for both. Second, it will argue that an analysis should rely on both syntactic and discourse information: this is why an account in the framework of Lexical-Functional Grammar will be proposed. In section 2, we introduce some generalities about multiple questions, such as pair-list *vs.* single pair readings and *D-linkedness*. In the next section, we present the data, associating the different syntactic structures with possible interpretations. In section 4, we introduce the LFG approach to information structure, which proves to be crucial in the analysis, then we go on to the proposed analysis, which we illustrate with examples in the subsequent section.

2 Generalities

In a multiple question we find more than one information gap in a sentence. In syntactic terms, it means that a sentence contains more than one question word, like in the following French example:

- (1) *Qui a dit quoi ? [French]*
who has said what
Who said what?

In the example, the question refers to the subject and the object at the same time.

It is commonly accepted that a multiple question can be answered in two ways. Some of them license a pair-list, others a single-pair answer, and some are ambiguous between the two. To decide which answer is appropriate, in certain cases only the context provides the clue, but some languages express this difference explicitly in syntax. Let us examine such examples from French (2)-(3).

- (2) Q:
Qui est parti quand ?
who is left when
Who left when?

[†]I would like to thank Anne Abeillé and András Komlósy for their valuable comments on earlier versions of this paper, as well as my fellow students at the Université Paris 7 for the discussion of the data. The usual disclaimers apply.

A: John left in the morning, Mary in the afternoon, and Jane in the evening.

(3) Q:

Qui est parti et quand ?

who is left and when

Who left and when?

A: John left in the morning.

In French, the example in (2) asks for a pair-list answer, whereas the equivalent (3) with coordination is more naturally answered with a single pair. In other languages (like Romanian), it is possible to accumulate *wh*-words in sentence-initial-position, which license a pair-list answer, whereas the coordination of *wh*-words licenses a single-pair answer. As we will see later, the pair-list interpretation can be analyzed as a function applying between the two *wh*-words (Krifka (2001)), in which each element (or partition) of the set denoted by the first is paired up with one element denoted by the other *wh*-word.

An important factor about pair-list questions is the observation that one of the question words denotes a contextually given set, which the locutor and the interlocutor can partition in the same way (Comorovski (1996)), and the range of felicitous answers is limited by this set (Pesetsky (1987)).¹ Pesetsky (1987) and Comorovski (1996) call this set *D(iscourse)-linked*, referring to the fact that the set has already been introduced into the discourse.² Ginzburg and Sag (2000) argue, on the other hand, that neither (none) of the sets has to be contextually determined, like in (4).

(4) Which recently published reports should be made required reading for which government departments? (Ginzburg and Sag (2000), p. 248)

According to the authors, any new public official can ask (4), without knowing a defined set of reports. We believe, on the other hand, that without the context the issue is very difficult to judge. However, the modifier *recently published* makes it possible to establish a context and to restrict the possible reports to those published recently, which is, in a way, a contextually determined set, even if the new public official cannot list them by title. Note that without the above mentioned modifier the sentence is less acceptable, if we suppose that the locutor does not know any of the reports (5):

(5) #Which reports should be made required reading for which government departments?

In this article we will therefore keep the term *D-linked* to refer to *wh*-words denoting sets that are contextually determined or salient in the discourse. Just like the type of answer expected to the question, D-linkedness can also determine syntactic structure. In some languages, D-linked question words tend to precede non-D-linked ones, and similarly, the constituents corresponding to the D-linked question word precede their non-D-linked counterparts in the answer. Let us consider the following Hungarian examples (6)-(7):

(6) Q:

Ki mit hozott a buli-ra?

who what brought the party-to

Who brought what to the party?

A:

¹This means that, for example, in order to give a pair-list answer to a multiple question referring to *the students*, the interlocutor does not have to know them individually, but they can list them by their nationalities.

²Pesetsky (1987) claims, in a transformational framework, that D-linked *wh*-phrases do not have to move to Comp at LF, but can take scope, whereas non-D-linked ones must move, since the former are no quantifiers, but the latter are.

János bort, Mari pedig sütitet hozott.
 John wine.ACC Mary as for cookies brought
 John brought wine, and Mary cookies.

(7) Q:

Mit ki hozott a buli-ra?
 what who brought the party-to
 *What did who bring to the party?

A:

A bort János, a sütitet pedig Mari hozta.
 the wine.ACC John the cookies as for Mary brought
 The wine was brought by John, the cookies by Mary.

In example (6), the question asks for the enumeration of all the people present at the party and then about the thing each of them brought. In (7), on the other hand, all the things brought to the party are listed and then identified with a person. In the English translation, apart from the passive, the definite article in the answer to (7) also expresses this change of perspective. This function of the D-linked *wh*-phrase is referred to by Kuno and Takami (1993), as the *Sorting Key Hypothesis*, where the linearly first question word determines the organization of the information in the answer.

In the next section, our aim will be to investigate how the pair-list/single-pair difference is expressed in the two languages. As we will see, some syntactic structures are ambiguous between the two readings, whereas others have clearly only one possible interpretation. Then, we will also examine the problem of how the D-linked question word can be identified in French.

3 The Data

3.1 Possible syntactic structures

Based on the syntactic structure, we can identify five main types of multiple questions in the two languages. A sixth structure also exists, but it is argued to contain clausal coordination and thus does not qualify as a true multiple question.

3.1.1 All question words extracted (only in Hungarian)

As we have seen above, all question words can appear preverbally in Hungarian, both in main and in embedded clauses:³

(8) *Ki hogyan oldotta meg az előző nap eseményei-nek tálalását?*
 who how solved VM the preceding day events-POSS presentation
 Who could find which way of presenting the events of the preceding day?

(9) *Cikksorozat-unk-ból megtudhatják végre, mi mi-t jelent.*
 series of articles-POSS-from learn-can.3PL at last, what what-ACC means
 From our series of articles you can learn, at last, what means what.

³The examples come from the Hungarian National Corpus

- (10) *A szerző pontosan megfogalmazta, ki mikor megy át a színen (és mit csinál).*
 the author precisely said, who when go across the scene-on (and what does)
 The author gave precise instructions about who should cross the scene when (and what they should do).

These questions all license a pair-list reading, determined by the structure of the question. This means, that the answer to (8) pairs up a set of people with ways of presenting, the answer to (9) a set of things with things, and the answer to (10) a set of people with time slots.

3.1.2 One question word extracted, the other(s) *in situ*

This structure is possible in both languages. Let us consider Hungarian first:

- (11) *Ki hívott meg kit a bulira?*
 who invited PRT whom the party-to
 Who invited whom to the party?

This type of question, contrary to the previous one, usually expects a single-pair answer. We should note, however, that acceptability judgements show great variation and some speakers would even answer such questions with a pair-list. Interestingly, for some speakers, this structure is grammatical, only if the question words denote the same type of set:

- (12) ?? *Ki mondott mit?*
 who said what
 Who said what?
- (13) *Honnan utazol hova?*
 from where travel.2SG where
 From where to where are you travelling?
- (14) *Melyik lány táncolt melyik fiúval?*
 which girl danced which boy-with
 Which girl danced with which boy?

According to a plausible explication Kálmán (2001), the expected answer to such a question can be a direction, or, more precisely, the direction of the relation between the denotations of the two question words and not the denotations themselves. In other words, this means that the question contains two (or more) forms of the interrogative word *ki* (who), *mi* (what) or *melyik* (which), or some locative question word *hol*, *honnan*, *hová* (where, from where, to where).

In French, for this type the pair-list is the preferred reading, but the single pair answer is not excluded either. We can find examples for both, especially if both question words are arguments. Let us consider the following examples:

- Arguments

- (15) *Qu'est-ce que tu as donné à qui ?*
 what is it that you have given to whom
 What did you give to whom?
 The question is compatible with both answers:
 A1 (single-pair):

J'ai donné un livre à Marie.
I have given a book to Mary.
I gave a book to Mary.

A2 (pair-list):
J'ai donné un livre à Marie, et un stylo à Paul...
I have given a book to Mary, and a pen to Paul...
I gave a book to Mary, and a pen to Paul.

- Argument and adjunct

(16) Q:
En famille, qui dort où ? (google)
in family, who sleeps where
In the family (home) who sleeps where?

A (pair-list):
Les parents dorment au premier étage et les enfants au deuxième.
the parents sleep on the first floor and the children on the second
The parents sleep on the first floor and the children on the second.

(17) Q:
Quand est-ce que tu as vu qui ?
when is-it that you have seen whom
When did you see whom?

A (single-pair):
J'ai vu Jean ce matin.
I have seen John this morning
I saw John this morning.

- Adjuncts

(18) Q:
Où Jean a dormi quel jour ?
where John has slept which day
Where did John sleep on which day?

A (pair-list):
Lundi, Jean a dormi à Rome, mardi à Nice, mercredi à Cannes.
Monday John has slept in Rome, Tuesday in Nice, Wednesday in Cannes
On Monday, John slept in Rome, on Tuesday in Nice, on Wednesday in Cannes.

(19) Q:
Quand est-ce qu'il est arrivé avec quelle intention?
when is it that he is arrived with what kind of intention
When did he arrive and what was his intention?

A (single pair):
Il est arrivé lundi pour rencontrer Jean.
he is arrived Monday to meet John
He arrived on Monday to meet John.

However, in some examples, one of the readings is excluded on pragmatic grounds. For instance, in the case of unique events, only the single-pair reading is available:

- (20) **Qui a tué Henri IV quand ?*
 who has killed Henri IV when
 *Who killed Henri IV when?

The ungrammaticality of this example shows that the preferred reading, especially in cases where one of the question words is an argument and the other is an adjunct, is the pair-list. The tendency can be explained by the fact that there is another structure available (clausal coordination), which, in turn, licenses only single pair answers.

3.1.3 All question words *in situ* (only in French)

Similarly to the previous type, both readings are available in these questions. This type is, as we have shown above, the informal equivalent of the second structure. Let us have a look at the following examples:

- (21) Q:
Tu vas chercher qui à quelle heure ?
 you go pick up whom at which hour
 Whom are you going to pick up when?

A (pair-list):

Je vais chercher Max à 17 heures et Léa à 18 heures.
 I go pick up Max at 17 hours and Léa at 18 hours
 I'm going to pick up Max at 5 pm and Léa at 6 pm.

- (22) Q:
Tu es allé où avec quelle intention?
 you are gone where with what kind of intention
 Where did you go (and) what was your intention with it?

A (single-pair):

Je suis allé chez Jean pour lui dire la vérité.
 I am gone to John to him tell the truth
 I went to John to tell him the truth.

3.1.4 Constituent coordination in initial position

In Hungarian, almost all kinds of question words can be coordinated. This structure typically triggers a single-pair answer:

- (23) *Ki és mikor ment moziba?*
 who and when went cinema-to
 Who went to the cinema and when?

This structure seems to complement the second type in that it is not felicitous if the two question words denote the same type of set:

- (24) **Ki és ki-be szeretett bele?*
 who and who-into loved PRT
 *Who and with who fell in love?

However, in some contexts, the pair-list reading is also acceptable:

- (25) *Korábban csak a tejesebertől vagy a postástól lehetett információkat*
before only the milkman-from or the postman-from could information
megtudni arról, hogy éppen ki és mikor nyaral, vagy általában
get about, that at the moment who and when on holiday, or usually
melyik napszakban nem tartózkodik otthon, manapság viszont a
which part of the day not be at home, nowadays on the other hand the
betörők internetes kutatómunká-val készülnek fel a kiszemelt házak, lakások
burglars internet research work-with prepare VM the chosen houses, flats
kifosztására.
burglary.POSS

Before one could get information only from the milkman or the postman about who went on holiday and when, or usually who is not at home in which part of the day. Nowadays, on the other hand, burglars prepare for the burglary of the chosen houses and flats with some research on the internet.

In French, only question words with the same grammatical function (for instance: subject, object, adjunct) can be coordinated:

- (26) (adjuncts)

Quand et pourquoi est-il parti ?
when and why is he left
When and why did he leave?

- (27) (different arguments)

**Qui et quoi fait ?*
who and what do
*Who and what is doing?

- (28) (argument and adjunct)

?? Qui et quand est parti ?
who and when is left
*Who and when left?

The coordination of two arguments with the same function, on the other hand, cannot always be considered as a multiple question, since it does not contain two information gaps in the sentence. Its function is rather the enlargement of the domain set of the question, for instance, to cancel the restriction imposed by *qui* (who) that the answer has to be animate.

- (29) *Qui ou quoi a favorisé l'allaitement maternel ?*
who or what has approved the breastfeeding maternal
Who or what approved of maternal breastfeeding?

In other cases, however, it is indeed a multiple question:

(30) *Quand et où a eu lieu le concert ?*
when and where has had place the concert
When and where did the concert take place?

(31) *Quel âge et quel grade a M Martin?*
which age and which rank has M Martin
How old is Mr. Martin and what is his rank?

Concerning the interpretation, similarly to Hungarian, the single-pair reading is preferred, but the pair-list reading is also possible, depending on the context (single or general event):

(32) (single-pair reading)

Pourquoi et quand avez-vous décidé d'arrêter vos études universitaires?
why and when have-you decided to stop your studies university
Why and when did you decide to stop your academic studies? (Rochefort, Christiane (1978) *Ma vie revue et corrigée par l'auteur à partir d'entretiens avec Maurice Chavardès*. Stock: Paris. p. 308.)

(33) (pair-list reading)

Quand et pourquoi voit-on circuler des trains sans voyageurs? (SNCF)
when and why see-we circulate ART trains without passengers
When and why can we see trains without passengers?
(http://www.infolignes.com/article.php3?id_article=3505)

The possibility of the pair-list reading suggests that the question words are in the same clause, and that the structure contains constituent and not clausal coordination with ellipsis in the first conjunct. As we will see, the pair list reading is not available in the sixth type, which, in turn, will be considered as clausal coordination.

Interestingly, at first sight, it is also possible in French to coordinate *wh*-words with different functions, if the verb is in the infinitive. Consider the following example:

(34) *Qui et quand consulter quand un couple rencontre des problèmes pour avoir un enfant ?*
whom and when to consult when a couple meets problems for have a child
Whom should we consult and when, in case a couple has problems having a child?

According to Anne Abeillé (p.c.), however, this is only possible if the verb has an optional argument (in both examples, the object is optional) and thus the sentences are elliptical structures with right-node-raising of the infinitive.

3.1.5 Constituent coordination *in situ*

In spoken French, the coordinated interrogative constituent can also appear *in situ*.

(35) *La conférence a eu lieu où et quand ?*
the conference has had place where and when
When and where did the conference take place?

In case if the second/sentence-final question word is an adjunct, this type is difficult to distinguish from clausal coordination.

3.1.6 Clausal coordination

In this sixth type of multiple questions, the structure consists of two coordinated clauses with ellipsis in the second clause. In this case, only the single pair reading is available in both languages, which we can consider as an argument for the biclausal analysis. We will see other arguments supporting this view. Let us have a look at some examples:

(36) *À qui as-tu parlé et pourquoi ? [French]*
to whom have you spoken and why
To whom did you speak and why?

(37) *Ti persze biztosan nagy tudorok vagytok, de pontosan mit hazudott volna és miért? [Hungarian]*
you of course certainly big scientists are, but precisely what lied AUX
and why
You certainly know everything, but what precisely would he have said when he lied and why did he lie?

The arguments supporting the biclausal analysis are the following:

First of all, the second part of the sentence can presuppose that the first question is already answered and can thus refer only to one of the possible answers to the question, like in the following invitations to a party:

(38) *Dites-nous si vous venez et à combien, pour qu'on puisse s'organiser en fonction.*
tell us if you come and PREP how many, in order that we could us organize
in function
Tell us if you come, and if so, how many of you, so that we can take it into consideration during the organization.

(39) *Léci, léci, jelezzen, aki még nem tette, hogy jön-e és hányan!!!*
please please write, who yet not did, that comes-CL and how many
Please please, tell me if you come and if so, how many of you!

In this case, in order to answer the question *à combien* or *hányan* (how many), it has to be accommodated Ginzburg (1997) that the person invited is actually coming to the party.

Another argument for the biclausal analysis is the fact that when both question words are arguments, the second one must be optional. This is possible only in the case of verbs that have both a transitive and an intransitive use:

(40) *Qui va parler et de quoi ?*
who FUT talk and about what
Who is going to give a talk and about what?

In (40) *parler* (talk) cannot appear in its transitive use. In Hungarian, with these verbs only the transitive reading is possible when the interrogative words are in a preverbal position and one of them refers to the object:

(41) *Mit és miért olvasott?*
what and why read.PAST
What did s/he read and why did s/he read it?

- (42) *Miért és mit olvasott?*
 why and what read.PAST
 What did s/he read and why did s/he read it?

On the other hand, in the structure that contains sentence-final coordination, sometimes two readings are possible depending on the verb (Gracanin, 2007): the first is called the *it-reading*, referring to the fact that the verb is understood as transitive in both clauses, like in the following example:

- (43) *Mit olvasott és miért?*
 what read.PAST and why
 What did s/he read and why did s/he read it?

However, in the second case, two readings are possible: the first is the above mentioned *it-reading*, and the second is the *at all reading*.

- (44) *Miért olvasott és mit?*
 why read.PAST and what
 Why did s/he read (what s/he was reading) and what did s/he read?/Why did s/he read at all and what did s/he read?

The *at all* reading is only possible if the transitive and the optionally transitive use of the same verb can be coordinated in the same sentence, which means that the above structure contains clausal coordination.

The examples with obligatory arguments are ungrammatical:

- (45) **Qui va faire et quoi ?*
 who FUT do and what
 *Who is going to do and what?

However, when both interrogative words are obligatory arguments, the preverbal coordination is grammatical.

The structure is perfectly possible with an argument and an adjunct (46) or with two adjuncts (50), if the argument is in the first clause:

- (46) *Qui a encore décroché le récepteur et pourquoi ? (J. Genet) [French]*
 who has again picked up the receiver and why
 Who has again picked up the receiver and why?

- (47) *Pourquoi voulait-il l'aider et comment ? [French]*
 why wanted he him help and how
 Why did he want to help him and how?

- (48) *Ki járt itt és mikor? [Hungarian]*
 who came here and when
 Who was here and when?

- (49) **Mikor járt itt és ki? [Hungarian]*
 when came here and who
 *When was here and who?

From this it follows that examples (36)-(37) are indeed the coordination of two clauses. If it is an adjunct that is coordinated sentence-finally, or both are in the preverbal field, the sentence is grammatical. This supports the view that in this example constituents and not clauses are coordinated. ((48) and (49) are grammatical with preverbal coordination.)

Concerning Hungarian, Lipták (2001) points out that the conjugation type of the finite verb differs from what we would expect based on the supposed non-elliptical counterpart of the sentence:

(50) *Nem érdekel, hogy mit készítesz és hogyan készíted.*
 not interests, that what make.2SG.INDEF and how make.2SG.DEF
 I am not interested in what you make and how (you make it).

(51) *Nem érdekel, hogy [mit és hogyan] készítesz.*
 not interests, that [what and how] make.2SG.IND
 I am not interested in what you make and how (you make it).

She argues that the structure cannot be elliptical, since then the verb should be definite. However, Bánréti (2007) shows that the rule of ellipsis in Hungarian is not so strict with respect to the agreement with the definiteness of the object, as it is in the case of tense and mood endings, i.e. even if the overt verb and the one falling under ellipsis are of different conjugations, the sentence can be grammatical. These are the reasons why we analyze structure 4 and 5 as constituent and structure 6 as sentential coordination. In what follows we will not deal with sentential coordination, since they do not qualify as true multiple questions according to the definition we presented above. After considering the data, we identify some problems that have to be accounted for by the analysis proposed.

3.2 Problems

3.2.1 Two preverbal question words in Hungarian

In Hungarian, only one preverbal focus is permitted:

(52) **JÁNOS TEGNAP ESTE ment moziba.*
 János yesterday evening went cinema-to
 JOHN went to the cinema YESTERDAY EVENING.

If both *JÁNOS* and *TEGNAP ESTE* are focussed, one of them (in this case *TEGNAP ESTE*, since *JÁNOS* is the subject), has to appear in a postverbal position (we leave it now open if this position is *in situ* or sentence-final):

(53) *JÁNOS ment moziba TEGNAP ESTE.*
 János went cinema-to yesterday evening
 JOHN went to the cinema YESTERDAY EVENING.

Nevertheless, if question words are considered as a subtype of focus, it is surprising why two of them can appear in the preverbal position in Hungarian, which can accommodate only one focus in a declarative sentence. One type of analysis would be to assume that question words, in spite of all the prosodic, syntactic and semantic similarities, are not a subtype of focus, and what makes them similar is that they play similar roles in the discourse, i.e. that they constitute the most prominent parts of question-answer pairs. In this case, the information structure architecture should not contain the focus as a primitive category, but more neutral ones that can be filled differently in declaratives and interrogatives. Another way is to claim that interrogative words constitute a special type of focus that are subject to different restrictions in Hungarian. This is what Mycock (2006) proposes: she argues that

this is why two of them can precede the finite verb in Hungarian. This way, focus can be kept as an information structure primitive, but it has to be signaled whether its interrogative or not. However, the different categorization itself does not explain the phenomenon. A third possibility is to claim that only one of these preverbal interrogative words can be considered as focus. This is what we will propose in this article, keeping in mind that an analysis following either of the two other directions would also be possible.

3.2.2 *D-linkedness in French*

Contrary to the Hungarian data, where the D-linked or Sorting key question word is identifiable from the syntactic position, this difference is not manifested in the syntax in French. Since word order is more rigid in French, the order, or the syntactic position of the question words, does not change according to the discourse-status of the question words. Consider the following examples:

(54) Q:

Quel groupe est allé voir quel monument ?
which group is gone see which monument
Which group went to see which monument?

A:

Les linguistes sont allés voir la Tour Eiffel, les psychologues l'Arc de Triomphe...
the linguists are gone see the Tower Eiffel, the psychologists the Arc de Triomphe...
Triomphe
The linguists visited the Eiffel Tower, the psychologists the Arc de Triomphe...

Both the question and the answer are ambiguous between a contextually determined set of tourists and a contextually determined set of monuments. However, the interlocutor is aware of the fact that s/he has to enumerate exhaustively all the tourist groups or all the monuments and pair them up with an element of the other set. What helps, in this case, is the context, and not syntactic or prosodic information. The contextual difference means that the difference between the question words is encoded in the information structure and not at the other levels of linguistic analysis. The parallel architecture of Lexical-Functional Grammar will make it possible to account for these differences, since it dissociates discourse functions from syntax and prosody.

3.2.3 *Question words denoting the same type of set*

We have seen above that in structure 3, not all question words can appear in Hungarian, but only those that denote the same type of set. Again, this is a semantic restriction that cannot easily be captured in syntax. As we will see, according to a recent proposal (Dalrymple, 2010), in LFG semantic information is integrated into the information structure, and both are related to, but dissociated from the syntax. Again, what we see is that the information structure architecture that a certain theory assumes plays a crucial role in the analysis of the phenomena. After looking at the last problematic point, we continue with the introduction of the concept of information structure in LFG.

3.2.4 *Coordination of different functions*

In French, coordinated constituents have to share all their functions (e.g. subject and topic), whereas in Hungarian, almost all preverbal question words can be coordinated (if they do not denote the same type of set):

- (55) *Ki és mikor ment moziba?*
 who and when went cinema-to
 Who went to the cinema and when?

The question is then, what is the common function that constitutes the basis of the coordination. Lipták (2001) and Skrabalova (2006) claim that this function is that they are focussed. This means that in Hungarian (and in some other languages, like in Czech), the identity of at least one function the conjuncts share is enough to obtain a grammatical coordination. In other languages, like in French, all functions have to be shared by the conjuncts. However, two non-interrogative foci cannot be coordinated in the preverbal position:

- (56) **JÁNOS és TEGNAP ment moziba.*
 János and yesterday went cinéma-to
 JÁNOS went to the cinema YESTERDAY.

On the other hand, it is possible to coordinate other, prosodically prominent/focussed elements, like in the following example:

- (57) *Ide MINDENKI és MINDIG be-jö-het.*
 here everybody and always PRT-enter-can
 EVERYBODY can ALWAYS come in here.

Although the universal quantifiers are syntactically not in the designated focus position (this follows from the fact that the verbal particle precedes the verb and in the presence of a focussed constituent it follows it), their prosody and use⁴ makes them similar to focussed constituents, syntactically they differ from them. This example clearly shows that *focus* as a semantic/information structure concept cannot always be associated with fixed syntactic positions. Rather, focussed elements can appear at different parts of the sentence in Hungarian. It seems thus that in Hungarian the common (grammatical or discourse) function has to be completed by some common lexical feature: an interrogative or universal quantifier. Again, this shows that levels other than the syntactic play a crucial role in the grammar of multiple questions.

4 The information structure in LFG

In earlier versions of the LFG framework, discourse functions were integrated in the functional structure, linked via functional uncertainty (one syntactic unit was associated with two functions at the same time, for instance *topic* and *subject*). The projection of the information structure as a separate level of representation was motivated by the following problems.

First of all, this meant that different kinds of information were represented in the same structure. This goes against the LFG way of representing information at different levels of representation (Choi (1999), Dalrymple (2010)).

Secondly, King (1997) argues that encoding discourse functions in the f-structure leads to circularity, in the case where it is only the verb, without its arguments, that is focussed. This is why she proposes an independent level of representation, where discourse functions are encoded, with their bare predicate value (without their arguments).

Another reason why a separate level of information structure is necessary is that syntactic constituents do not correspond systematically to constituents of information structure, like in the following example:

⁴This sentence cannot be uttered out of the blue. Just like in the case of focus, this sentence is also a correction or the answer to a question.

(58) It was the RED shirt that Mary gave to John, not the blue one.

In (58) the whole constituent *the RED shirt* that is clefted; however, it is only the element *RED* that is focussed. This difference can be captured if clefting and focalization are represented at different levels.

Butt and King (1996) propose that the information structure consists of four sets, which are defined by the combination of two features: *new* +/- and *prominent* +/- . The *TOPIC* set contains elements that are prominent, but not new, the (*Information*) *FOCUS* set contains new and prominent elements, whereas old and not prominent elements belong to *BACKGROUND* and new but not prominent ones to *COMPLETIVE INFORMATION*. Although this classification simplifies the definition of discourse functions, for instance, foci are not always new, and prominence is, in some cases, difficult to define (Krifka (2006)), we will base our analysis on this architecture, with some precision of the sets mentioned above. We will consider as *FOCUS* elements that are answers to questions.⁵ These are not necessarily new, since some of the answers can already be introduced in the discourse, for instance in the case of questions which require the choice between two possibilities already present in the question:

(59) -Who did you invite to the party, Mary or John?
-John.

In our analysis, the *TOPIC* set will contain elements that are contextually determined and salient in the discourse, bearing at the same time prosodic and/or syntactic prominence (the latter meaning, in most cases, a position in the left periphery of the sentence). It is important to remark that *topic* here corresponds to *sentential topic* and not to *discourse topic*, referring to one element of the sentence and not to the question under debate in the whole discourse (Beyssade et al. (2004)), although the two are related: sentence topics constitute subtopics or subquestions of the *Question under Discussion/Discourse Topic*. All other elements will be placed in the set of *BACKGROUND INFORMATION*. In the next section we examine how the LFG architecture can account for the problems mentioned above.

Dalrymple (2010) proposes that the information structure categories contain the semantic description of the particular elements. Our data confirm this. As we will see in the concrete examples, some phenomena are best accounted for by referring to semantic features within an information structure category. In addition, the pair-list reading can also be derived from such a representation.

In the next section we examine how the LFG architecture can account for the problems mentioned above.

5 The proposed analysis

5.1 Two preverbal question words in Hungarian and *D-linkedness* in French

Both of the problems mentioned above are related to the fact that, in pair-list questions, one of the question words differs from the other in some respects (semantics, prosody, etc.). Since this difference plays an important role in the answer, we propose that (in the already presented information structure architecture) the *D-linked/Sorting key* question words belong to the *TOPIC* set, and the other(s) to the *FOCUS* set.

It has already been suggested in the literature that *D-linked*, or in some languages, initial interrogative words, share some properties with topics, in that they are both contextually determined, given, and salient in the discourse. Surányi (2006) argues that Hungarian high *wh*-phrases, although not moved by topicalization, are interpreted at interfaces as topics, since, like topics, they invariably quantify over

⁵A more precise definition that takes account of all focus-related phenomena would also include parallelism and corrections, in which the focussed constituents are the parts of the sentence that are in parallel with, or correct parts of previous sentences. The common property with answers to questions is the fact that sentences containing foci cannot be uttered out of the blue, but always as a reaction to the preceding context. These other uses of focus are, however, beyond the scope of the present study.

presupposed sets, and constituents that correspond to these *wh*-phrases appear in the topic, and not in the focus position in Hungarian. Unfortunately, the claim that an element is not moved by topicalization, but is interpreted at interfaces as a topic, is difficult to formalize in a minimalist framework that aims to account for all phenomena in syntax, via movement to various functional projections, which, in turn express discourse or semantic information. It seems, therefore, that an LFG approach, in which information structure is treated independently from syntax, is a more adequate framework to account for this phenomenon.

Another argument supporting this claim is that constituents corresponding to *D-linked/Sorting key* question words in the answer are contrastive topics (Büring (2003)). In Hungarian pair-list questions the question words cannot be preceded by (other) contrastive topics:

- (60) **Jánosról, arról mikor mit mondtak?*
 János about that about when what said.3PL
 John, what did they say about him when?

In French, in the answers to pair-list questions, only one XP gets prosodically distinguished, the one corresponding to the non-D-linked question word (Marandin (2006)). The others bear a certain type of accent that Beyssade et al. (2004) call C-accent and relate to the so-called B-accent in English (Jackendoff (1972), Büring (2003)). Both are supposed to encode contrastive topics. Let us consider the following example:

- (61) *Quels étudiants étudient quoi dans ce département ?*
 which students study what in this department
 Which students study what in this department?
- (62) *Les étudiants de première année étudient la syntaxe, ceux de seconde année la sémantique.*
 the students of first year study the syntax, those of second year
 the semantics
 The first year students study *syntax*, those of the second year *semantics*.

Hungarian is not the only language in connection with which the claim about the topic status of high *wh*-phrases has been made. According to Jaeger (2003) topic-fronted objects are clitic-doubled in colloquial Bulgarian. He also notices that *wh*-phrases in multiple questions are also subject to clitic-doubling, in which case superiority effects are cancelled, and argues for the topicality of high *wh*-phrases in Bulgarian.

Furthermore, Grohman (2006) shows that only topicalizable elements can intervene between two *wh*-phrases in German multiple questions and proposes that therefore all *wh*-phrases undergo topicalization. It is not our aim here to contest Grohmann's analysis (for instance the discourse status and semantics of lower *wh*-phrases is clearly different from that of initial ones), but to show that the topicality of *wh*-words has been claimed in connection with various languages, based on a variety of criteria (syntactic position, cliticization, intervention).

In addition, some semantic similarities can also be observed between these *wh*-phrases and topics: both tend to be given, referential, salient in the discourse and to denote a contextually determined set of entities.

The analysis proposed is thus the following. At the level of information structure, *D-linked/Sorting key* question words belong to the *TOPIC* set, but they can be associated with different syntactic positions, depending on the language. In Hungarian they precede non-D-linked question words, whereas in French they can be sentence-initial, just like sentence-final ones. The advantage of this approach is that it does not suppose that question words are exceptional in that there can be two (interrogative) preverbal foci

in Hungarian, and that this cancels the apparent ambiguity in pair-list questions in French. Consider the analysis of Hungarian (6) and (7):

Functional structure	Information Structures
	Ki mit hozott a bulira? (Who brought what to the party?)
$\left[\begin{array}{l} \text{PRED} \quad \text{'hoz} \langle \langle (\uparrow \text{SUBJ}), (\uparrow \text{OBJ}), (\uparrow \text{OBL}) \rangle \rangle \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'pro'} \text{ (KI)} \right] \\ \text{OBJ} \quad \left[\text{PRED} \quad \text{'pro'} \text{ (MIT)} \right] \\ \text{OBL} \quad \left[\text{PRED} \quad \text{'a bulira'} \right] \\ \text{TNS} \quad \left[\text{PAST} \right] \end{array} \right]$	$\left[\begin{array}{ll} \text{TOP} & \text{ki} \\ \text{FOC} & \text{mit} \\ \text{BACKGR} & \text{hozott a bulira} \end{array} \right]$
	Mit ki hozott a bulira? (What was brought by whom to the party?)
	$\left[\begin{array}{ll} \text{TOP} & \text{mit} \\ \text{FOC} & \text{ki} \\ \text{BACKGR} & \text{hozott a bulira} \end{array} \right]$

The two questions have the same f-structure, but they have different c-structures and different information structures. In the first case *ki* (who) belongs to the topic set and *mi* to the focus set, whereas in the second, it is the other way round. These information structure categories are associated with syntactic positions in Hungarian, but other encodings are also possible in other languages. The French example is represented in a similar way:

Functional Structure	Information structure
	Quel groupe a visité quel monument ? (Which group visited which monument?)
$\left[\begin{array}{l} \text{PRED} \quad \text{'visiter} \langle \langle (\uparrow \text{SUBJ}), (\uparrow \text{OBJ}) \rangle \rangle \\ \text{Q} \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'quel groupe'} \right] \\ \text{OBJ} \quad \left[\text{PRED} \quad \text{'quel monument'} \right] \end{array} \right]$	$\left[\begin{array}{ll} \text{TOP} & \left[\text{QUEL GROUPE} \right] \\ \text{FOC} & \left[\text{QUEL MONUMENT} \right] \\ \text{BACKGR} & \left[\text{VISITER} \right] \end{array} \right]$
	$\left[\begin{array}{ll} \text{TOP} & \left[\text{QUEL MONUMENT} \right] \\ \text{FOC} & \left[\text{QUEL GROUPE} \right] \\ \text{BACKGR} & \left[\text{VISITER} \right] \end{array} \right]$

In these French examples, the questions have not only the same f-structure, but the same c-structure as well (the presentation of this latter is beyond the scope of this paper). What makes the interpretational difference between them is the information structure.

5.2 Restrictions on sentence-final question words in Hungarian

Concerning the formalization of this phenomenon, we can suppose that the lower interrogative word in the structure must share some (semantic) feature with the higher one (animacy, specificity or location) and this accounts for the fact that they belong to the same lexeme and denote the same type of set. These features are distributive, characterizing the whole set of interrogative words at the level of information structure, which means that the unification fails if they have different values.

Functional structure	Information structure
Ki hívott meg kit a bulira? (Who invited whom to the party?)	
$\left[\begin{array}{l} \text{PRED} \quad \text{'meghív} \langle \langle (\uparrow \text{SUBJ}), (\uparrow \text{OBJ}), (\uparrow \text{OBL}) \rangle \rangle \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'pro'} \left(\text{KI} \right) \right] \\ \text{OBJ} \quad \left[\text{PRED} \quad \text{'pro'} \left(\text{KIT} \right) \right] \\ \text{OBL} \quad \left[\text{PRED} \quad \text{'a bulira'} \right] \\ \text{TNS} \quad \left[\text{PAST} \right] \end{array} \right]$	$\left[\begin{array}{l} \text{TOP} \\ \text{FOC} \quad \left\{ \begin{array}{l} \left[\text{KI} \right] \\ \text{Q} \\ \text{ANIM +} \\ \text{SPEC-} \end{array} \right\} \\ \left\{ \begin{array}{l} \left[\text{KIT} \right] \\ \text{Q} \\ \text{ANIM +} \\ \text{SPEC-} \end{array} \right\} \\ \text{BACKGR} \quad \text{hívott meg a bulira} \end{array} \right]$

In the LFG architecture, since semantic information is integrated into the information structure, it is possible to indicate the distributive features of the set there. The treatment of interrogative words in this case is similar to that of coordination, which is also represented in LFG as a set. Let us now have a look at coordination and the emerging problems.

5.3 Coordination

Coordination is analyzed in LFG as a set (Dalrymple (2001)), in which the elements have to share certain features. The general rule of coordination is the following:

$$\begin{array}{l} \text{Rule:} \\ \text{S} \quad \rightarrow \quad \text{XP} \quad \text{Conj} \quad \text{XP} \\ \quad \quad \quad \downarrow \in \uparrow \quad \uparrow = \downarrow \quad \downarrow \in \uparrow \end{array}$$

From the data we have seen above it seems (in LFG terms) that in Hungarian sharing a function at one level (f- or i-structure) is enough for the coordination to be grammatical: this contrasts with French, where the conjuncts have to share all their functions at all levels. However, besides the common information structure set, the conjuncts also share some lexical features in Hungarian (for instance the fact that they are interrogative). Again, this also supports the view that semantic information is integrated into the information structure. Consider the following example from French = (30):

Où et quand a eu lieu la conférence ? (Where and when did the conference take place?)

Functional structure	Information Structure
$\left[\begin{array}{l} \text{PRED} \quad \text{'avoir lieu'} \langle (\uparrow \text{SUBJ}), (\uparrow \text{OBL}), (\uparrow \text{OBL}) \rangle \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'la conférence'} \right] \\ \text{OBL} \quad \left\{ \begin{array}{l} \left[\text{PRED} \quad \text{'pro'} \left(\text{OÙ} \right) \right] \\ \left[\text{PRED} \quad \text{'pro'} \left(\text{QUAND} \right) \right] \end{array} \right\} \\ \text{TNS} \quad \left[\text{PAST} \right] \end{array} \right]$	$\left[\begin{array}{l} \text{TOP} \\ \text{FOC} \quad \left\{ \begin{array}{l} \text{Q} \\ \text{OÙ} \\ \text{QUAND} \end{array} \right\} \\ \text{BACKGR} \quad \text{la conférence a eu lieu} \end{array} \right]$

A similar Hungarian example:

Ki és mikor ment moziba? (Who went to the cinema and when?)

Functional structure	Information Structure
$\left[\begin{array}{l} \text{PRED} \quad \text{'megy'} \langle (\uparrow \text{SUBJ}), (\uparrow \text{OBL}) \rangle \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'pro'} \left(\text{KI} \right) \right] \\ \text{OBL} \quad \left[\text{PRED} \quad \text{'moziba'} \right] \\ \text{ADJ} \quad \left[\text{PRED} \quad \text{'pro'} \left(\text{MIKOR} \right) \right] \\ \text{TNS} \quad \left[\text{PAST} \right] \end{array} \right]$	$\left[\begin{array}{l} \text{TOP} \\ \text{FOC} \quad \left\{ \begin{array}{l} \text{Q} \\ \text{KI} \\ \text{MIKOR} \end{array} \right\} \\ \text{BACKGR} \quad \text{ment moziba} \end{array} \right]$

6 Conclusion

In this paper we have proposed an LFG account of multiple questions in French and in Hungarian. We have identified five (or, together with clausal coordination, six), different structures in the two languages and seen that they are (except for the first Hungarian structure) compatible with both a pair-list and a single-pair reading, if the question words are in the same clause. However, the following tendency can be observed: when the interrogative words are arguments, both the pair-list and the single pair readings are possible, whereas the pair-list reading is preferred in the case of adjuncts (if at least one of the question words is an adjunct), since an alternative structure also exists (clausal coordination), which is, in turn, only compatible with the single-pair reading. We identified four problems and argued that the LFG framework is suitable for handling all of them, because of its modular architecture, separating the different levels of linguistic information. Concerning the puzzle of two preverbal (interrogative) foci in Hungarian and the syntactic ambiguity of D-linkedness in French we proposed that D-linked/Sorting key question words belong to the topic set at information structure, since they share many properties with (contrastive) topics. Concerning the restrictions on preverbal and postverbal question words, and the coordination of question words with unlike functions, we have proposed that they are due to semantic features that question words are supposed to share in the focus set of the information structure. In Hungarian, apart from sharing some lexical features, conjuncts have to belong to the same set at at least one level of representation, whereas in French these are shared at all levels.

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