COMPLEX FOCUS VERSUS DOUBLE FOCUS
INVESTIGATIONS OF MULTIPLE FOCUS INTERPRETATIONS IN HUNGARIAN

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Abstract

The main aim of this paper is to point out several problems with the semantic analysis of Hungarian focus interpretation and 'only'. For current semantic analyses the interpretation of Hungarian identificational/exhaustive focus and 'only' is problematic, since in classical semantic analyses 'only' is identified with an exhaustivity operator. In this paper I will discuss multiple focus constructions and question-answer pairs in Hungarian to show that such a view cannot be applied to Hungarian exhaustive focus. Next to this I will discuss possible interpretations of Hungarian sentences containing multiple prosodic foci: *complex focus* versus *double focus*. My claim is that in order to interpret multiple focus (in Hungarian) we have to take into consideration the different intonation patterns, the occurrence of 'only', and the syntactic structure as well.

In my paper I discuss multiple focus constructions and their interpretations based on Hungarian data. Sentences containing two prosodical foci have two possible interpretations. First, the *complex focus* meaning (Krifka 1991), where we have semantically one focus: an ordered pair; and second, the *double focus* meaning, where the first focus takes scope over the second one. The paper investigates three main topics: (1) the multiple focus interpretations, (2) complex focus vs. double focus disambiguation and (3) the interpretation of 'only' in Hungarian. My main claims are the following:

(a) 'only' is not responsible for exhaustive meaning and 'only' and exhaustification are distinct in Hungarian contrary to the analysis of the classical theories (Groenendijk and Stokhof 1984, Groenendijk and Stokhof 1991, Krifka 1991);

(b) in order to interpret multiple focus constructions we have to take into consideration the occurrence of 'only', the intonation pattern and the syntactic structure as well.

The paper is organized as follows. As an introduction, in section 1.1 we will see the main attributes of Hungarian focus and in 1.2 we briefly discuss the classical semantic analyses of focus and exhaustivity. In section 2 we investigate the problem of 'only' and exhaustivity in multiple focus constructions and I propose a pragmatic analysis of 'only'. Section 3 provides further evidence of a pragmatic analysis of 'only' via Hungarian question-answer pairs. Section 4 deals with the disambiguation between complex focus and double focus interpretations and the role of intonation, syntax and the appearance of 'only'. Section 5 gives the conclusions and introduces some further work on scalar readings and scope relations.

1 Introduction

1.1 Focus in Hungarian

Hungarian – like Basque, Catalan, Greek, Finnish and many other languages – belongs to the family of discourse-configurational languages (É. Kiss 1995). A main property of these languages is that some discourse-semantic information is mapped into the syntactic structure of the

sentences as well. Hungarian has special structural positions for *topics*, *quantifiers* and *focus*. The special structural position for focused elements in Hungarian is the immediate pre-verbal position. The constituent in this position is assigned a pitch accent and receives an *exhaustive* interpretation.

In "neutral sentences" like (1a) the immediate pre-verbal position is occupied by the verbal modifier (VM) whereas in focused sentences like (1b)[1] this position is occupied by the focused element, and the verbal modifier is behind the finite verb.

> (1) a. Anna felhívta   Emilt.
>   (Anna VM-called Emil.acc)
>   'Anna called Emil.'
>
>   b. Anna EMILT   hívta fel.
>   (Anna Emil.acc called VM)
>   'It was Emil whom Anna called.'

É. Kiss (1998) distinguishes two types of focus: *identificational focus* and *information focus*. Her main claims are that these two types are different both in syntax and semantics, and that identificational focus is not uniform across languages. The main differences in Hungarian according to É. Kiss are the following: a) *identificational focus*: expresses exhaustive identification, certain constituents are out, it takes scope, involves movement and can be iterated; b) *information focus*: merely marks the unpresupposed nature, is nonrestricted, does not take scope, does not involve movement and can project. For example, we can answer the question '*Where were you last summer?*' with (2a), which has identificational focus, or with (2b), which has information focus. From these two answers only (2a) gets exhaustive interpretation.

> (2) a. ANGLIÁBAN voltam.
>   (England.loc was.1sg)
>   'It is England where I went.' [and nowhere else]
>
>   b. Voltam   ANGLIÁBAN.
>   (was.1sg England.loc)
>   'I went to England.' [among other places]

The pre-verbal focus in Hungarian falls under the category of identificational focus, whereas the status of the information focus in Hungarian is rather questionable (see e.g. Szendrői 2003). In the following we will concentrate on the pre-verbal (identificational) focus to point out several problems with the exhaustive meaning and 'only'. In Hungarian 'only' (*csak*) is always associated with identificational focus, see (3).

> (3) a. Csak ANGLIÁBAN voltam.
>   (only England.loc   was.1sg)
>   'I went only to England.'
>
>   b. *Voltam csak ANGLIÁBAN.
>   (was.1sg only England.loc)

Since in Hungarian both 'only' (*csak*) and identificational focus indicate exhaustivity, the question arises whether both contribute to semantics or one has only pragmatic function. English data suggest that the interpretation of 'only' is on the semantic part and the interpretation of focus is pragmatics. The Hungarian data I will discuss in the following sections will lead us to a different view.

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[1]Here and further on small capitals indicate pitch accent.

1.2   Classical analyses of focus and exhaustivity

In this section I will briefly introduce two classical semantic analyses of focus and exhaustivity: the *Partition Semantics* (Groenendijk and Stokhof 1984, 1991) and the *Structured Meaning Account* (Krifka 1991, among others). In both theories, 'only' is identified with an exhaustivity operator. Later on in the paper we will see that this view cannot be applied to some multiple focus constructions and the exhaustive focus in answers in Hungarian.

Krifka proposes a structured meanings account of questions and the focusation of answers. This theory is also called a functional approach, because the basic idea is that the meaning of a question is a function, which when applied to the meaning of a congruent answer, yields a proposition. Next to the function, its domain is given and together they form an ordered pair.

(4) $[\![$Who called Emil?$]\!] = \langle \lambda x[called(x, Emil)], PERSON \rangle$

Correspondingly, a sentence with focus is represented as a focus–background pair $\langle F, B \rangle$ where if we apply the background to the focus $B(F)$ we get the ordinary interpretation.

(5) $[\![\text{ANNA}_F \text{ called Emil.}]\!] = \langle Anna, \lambda x[called(x, Emil)] \rangle$
       $\lambda x[called(x, Emil)](Anna) = called(Anna, Emil)$

In this theory the focus sensitive particle 'only' is analysed as an operator which takes a focus-background structure. The meaning rule for 'only' (simple version) is the following:

(6) $[\![\text{only}]\!](\langle F, B \rangle) = B(F) \wedge \forall X \in Alt(F)[B(X) \rightarrow X = F]$[2]

In order to get the right interpretation for Hungarian exhaustive focus in this framework we have to introduce an *exhaustivity operator* that applies to the focus-background structure and has the same interpretation as 'only':

(7) $EXH(\langle F, B \rangle) = B(F) \wedge \forall X \in Alt(F)[B(X) \rightarrow X = F]$

With this exhaustivity operator we get the right interpretation for sentences like (1b) or (2a). In this way sentences with identificational focus and sentences with 'only' will get the same interpretation, since the interpretation of 'only' and the exhaustivity operator are the same. We will see in section 3 that this view can be problematic for Hungarian.

Similar facts hold for the question analysis of (Groenendijk and Stokhof 1984, 1991). For the semantics of linguistic answers they define an answer formation rule introducing an exhaustivity operator, which gives the minimal elements from a set of sets.

(8)   a. *the rule of answer formation:* if α' is the interpretation of an n-place term, and β' is the relational interpretation of an n-constituent interrogative, the interpretation of the linguistic answer based on α in the context of the interrogative β is $(EXH^n(\alpha'))(\beta')$, where EXH^n is defined as follows (generalized rule):
       b. $EXH^n = \lambda \mathcal{R}^n \lambda R^n [\mathcal{R}^n(R^n) \wedge \neg \exists S^n[\mathcal{R}^n(S^n) \wedge R^n \neq S^n \wedge \forall \vec{x}[S^n(\vec{x}) \rightarrow R^n(\vec{x})]]]$

In this model, if we give the answer *'Anna.'* to the question *'Who called Emil?'*, then it is interpreted as *'Only Anna called Emil.'*:

(9) $(EXH(\lambda P.P(Anna)))(\lambda x.called(x, Emil)) =$
       $\lambda P \forall x[P(x) \leftrightarrow [x = Anna]](\lambda x.called(x, Emil)) =$
       $\forall x[called(x, Emil) \leftrightarrow [x = Anna]]$

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[2] $Alt(F)$ is the set of the natural alternatives of the focused element.

So the interpretation is that Anna called Emil and nobody else (from the relevant) domain called Emil.

2   Multiple focus interpretations

2.1   Two readings

This section focuses on two readings of multiple focus constructions. In case of sentences containing two (or more) prosodic foci there are two possible interpretations. The two foci can form an ordered pair like in (10). Here semantically *a pair of constituents* is in focus. Krifka (1991) calls this type *complex focus* to distinguish it from other multiple focus constructions.

(10)   (Csak) ANNA hívta fel EMILT.
        ((only) Anna   called VM Emil.acc)
        'It is the Anna, Emil pair of whom the first called the second.'

(11)   John only introduced BILL to SUE. (from Krifka 1991)
        reading: the only pair of persons such that John introduced the first to the second is $\langle$Bill, Sue$\rangle$

The other type is one involving *real multiple foci* (Krifka 1991). In this case there are two focus operators and the first focus takes scope over the second one. See the following examples:

(12)   Csak ANNA hívta fel csak EMILT.
        (only Anna   called VM only Emil.acc)
        'Only Mary called only Peter.' [the others nobody or more persons]

(13)   Even$_1$ JOHN$_1$ drank only$_2$ WATER$_2$. (from Krifka 1991)

A similar distinction can be found in Hungarian multiple constituent questions. In multiple wh-questions there are two possible word orders that lead to two different meanings.

(14)   a. Ki   kit   hívott fel?
            (who whom called VM)
            'Who called whom?' (pair-list)
        b. Ki   hívott fel   kit?
            (who called VM whom)
            'Who called whom?' (complex)

(14a) requires a pair-list answer, while (14b) is a restricted question where both the questioner and the answerer already know that there is only one pair of whom the "call-relation" holds. The question can have a *strict* and a *loose* meanings (Lipták 2000). In the case of the strict meaning there are two specific individuals – e.g. Anna and Bea – under discussion, and the question is just about the theta-roles of the individuals: $\langle a, b \rangle$ or $\langle b, a \rangle$. In the case of the loose meaning there is a specific set of pairs of individuals, and the questions wants one element from this set. In our examples the interpretation of question (14b) corresponds to the complex focus reading in (10), in both cases there is one *pair of individuals* of whom the "call-relation" holds.

In the following I will use a bit more informative terminology for these two types: *pair-reading* for the complex focus and *scope-reading* for the double focus/real mutiple foci.

The above examples show that these two different readings are present in Hungarian. However, interestingly, example (15) can have both readings: the scope-reading (15a) and the pair-reading (15b).

(15)   Csak ANNA hívta fel csak EMILT.   (=12)
       (only Anna called VM only Emil.acc)
   a. 'Only Mary called only Peter.' [the others nobody or more persons]
   b. 'It is the Mary, Peter pair of whom the first called the second.'

One of the main questions of this paper is to find out how to analyze example (15b), where a pair of constituents is in focus but there are two 'only's. This case is rather problematic for the classical theories, since they analyze 'only' as an exhaustivity operator but here we have only one operator applied to the pair of constituents.

2.2   Analyses

In example (10) exhaustivity applies to pairs, which is exactly what Groenendijk and Stokhof's (1984, 1991) generalized definition of exhaustivity (8b) gives us. In our examples there are two terms, so the interpretation runs as follows:

(16) $(EXH^2(\lambda R[R(a,e)]))(\lambda x \lambda y.called(x,y)) =$
       $\lambda R \forall x \forall y[R(x,y) \leftrightarrow [x = a \wedge y = e]](\lambda x \lambda y.called(x,y)) =$
       $\forall x \forall y[called(x,y) \leftrightarrow [x = a \wedge y = e]]$

Krifka (1991) also gives an elegant analysis of multiple focus constructions in a compositional way. He gives a recursive definition of extended application for Focus-Background structures (17)[3] and defines the syntactic-semantic rules as follows (we give here only the relevants ones for our examples).

(17) $\alpha(\beta)$ functional application
       $\langle \alpha, \beta \rangle(\gamma) = \langle \lambda X.[\alpha(X)(\gamma)], \beta \rangle$
       $\gamma(\langle \alpha, \beta \rangle) = \langle \lambda X. \gamma(\alpha(X)), \beta \rangle$
       $\langle \alpha, \beta \rangle(\langle \gamma, \delta \rangle) = \langle \lambda X \bullet Y.[\alpha(X)(\gamma(Y))], \beta \bullet \delta \rangle$

(18) $S \rightarrow NP\ VP$; $[[_S\ NP\ VP]] = [NP]([VP])$
       $VP_{tr} \rightarrow V\ NP$; $[[_{VPtr}\ V\ NP]] = \lambda S \lambda T \lambda x.T(\lambda y.S(x,y))([V])([NP])$
       $C \rightarrow C_F$; $[C_F] = \langle \lambda X.X, [C] \rangle$
       $C \rightarrow FO\ C$; $[[_C\ FO\ C]] = \lambda \langle X, Y \rangle \lambda O[\lambda Z.O(\langle X, Z \rangle)(Y)]([C])([FO])$

$X \bullet Y$ is defined by Krifka as a list, but practically it is an ordered tuple (in our case here: a pair). *FO* stands for the focus sensitive operator ('only'). According to this system the interpretation of (10) is as follows:

(19)   *Emil$_F$*: $\langle \lambda T.T, e \rangle$
       called Emil$_F$: $\langle \lambda T \lambda x.T(\lambda y.called(x,y)), e \rangle$
       Anna$_F$: $\langle \lambda T.T, a \rangle$
       Anna$_F$ called Emil$_F$: $\langle \lambda X \bullet Y[X(\lambda x.Y(\lambda y.called(x,y)))], a \bullet e \rangle$
       only Anna$_F$ called Emil$_F$:
       $called(a,e) \wedge \forall x \bullet y[[x \bullet y \in Alt(a \bullet e) \wedge called(x,y)] \rightarrow (x \bullet y = a \bullet e)]$

These examples (16, 19) show us that both theories can easily deal with prosodically multiple foci that express semantically one focus, a pair. Both theories take an operator (*exh*/'only') that applies to an ordered pair. This way we get the intended meaning that it was the Anna, Emil

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[3]To make it simpler we give the rules without types. For more details see (Krifka 1991).

pair of whom the first called the second and there are no other pairs in the domain of which the call-relation holds. The problem of identifying 'only' with the exhaustivity operator is not yet visible here, because the interpretation results are correctly the same for (20a) and (20b), both have a pair-reading.

(20) a. ANNA hívta fel EMILT.
          (Anna called VM Emil.acc)

      b. Csak ANNA hívta fel EMILT.
          (only Anna called VM Emil.acc)

      for both: 'It is the Anna, Emil pair of whom the first called the second.'

The problem arises if we try to get the interpretation (15b) according to the classical theories. In Groenendijk and Stokhof's (1984, 1991) framework the two 'only's are the operators that exhaustify the phrases [4]. Following this the interpretation of (15) goes as follows:

(21) $(EXH(\lambda P.P(a)))((EXH(\lambda P.P(e)))(\lambda x \lambda y.called(x,y)))=$
      $(\lambda P \forall y[P(y) \leftrightarrow y = a])((\lambda P \forall x[P(x) \leftrightarrow x = e])(\lambda x \lambda y.called(x,y)))=$
      $\forall y[\forall x[\lambda y.called(x,y) \leftrightarrow x = a] \leftrightarrow y = e]$

It says that only Anna is such that she called only Emil, so we get the 'scope-reading' (15a). Exhaustifying the terms separately we cannot get the complex focus interpretation (15b).

The same problem arises for the interpretation in Krifka's (1991) analysis, where the two 'only's are applied to the two focused constituents respectively. In this framework as well, for (15) we get the 'scope-reading' (15a) but not the 'pair-reading' (15b).

(22) only Emil$_F$: $\lambda P[P(e) \wedge \forall y[(y \in Alt(e) \wedge P(y)) \rightarrow y = e]$
      called only Emil$_F$: $\lambda x[called(x,e) \wedge \forall y[y \in Alt(e) \wedge called(x,y) \rightarrow y = e]]$
      only Anna$_F$: $\lambda P[P(a) \wedge \forall x[(x \in Alt(a) \wedge P(x)) \rightarrow x = a]]$
      only Anna$_F$ called only Emil$_F$:
      $\lambda P[P(a) \wedge \forall x[x \in Alt(a) \wedge P(x) \rightarrow x = a]](\lambda x[call'(x,e) \wedge$
      $\qquad \forall y[y \in Alt(e) \wedge call'(x,y) \rightarrow y = e]])=$
      $called(a,e) \wedge \forall y[y \in Alt(e) \wedge call'(a,y) \rightarrow y = e] \wedge \forall x[x \in Alt(a) \wedge (call'(x,e) \wedge$
      $\qquad \forall y[y \in Alt(e) \wedge call'(x,y) \rightarrow y = e]) \rightarrow x = a]$

2.3 Proposal

A possible solution to solve the above problem is to suppose that in the case of the complex focus meaning of (12b) semantically there is only one operator. This can give rise to a suggestion that 'only' here is a resumptive operator and we have a kind of concord. However, I want to avoid this idea because of the fact that dropping the second 'only' from the sentence does not lead to ungrammaticality but gives the same meaning, see example (20a) and (20b).

Rather we suppose that 'only' and the exhaustivity operator are different, and in this case there is one exhaustivity operator that applies to the pair of the arguments, and the two 'only's work pragmatically saying that only Anna calling somebody and that only Emil being called by somebody were both unlikely or against the expectations.

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[4] An alternative might be that next to the exhaustification of the 'only's the exhaustification of the identificational focus comes on the top of it. It might be the case that exhaustification of the pair of exhaustified terms does not lead to scopal meaning. The question if this alternative might be correct is left for further research.

As for the double focus meaning where the first focus takes scope over the second one we suppose two separate exhaustivity operators, but on different points of the discourse. At the point of the discourse when the sentence is uttered the second focused expression comes as *old information* and happens to be in the scope of the first focus, which constitutes *new information*. This way the two focused expressions are apart and there is no way for them to form a pair.

(23)   Q: Ki   hívta   fel   csak EMILT?
            (who called VM only Emil.acc)

            'Who called only Emil?'

       A: Csak ANNA hívta   fel   csak EMILT.
            (only Anna   called VM only Emil.acc)

            'Only Anna called only Emil.' (scope-reading)
            #'It is the Anna, Emil pair of whom the first called the second.' (pair-reading)

3   A pragmatic analysis of 'only'

As we saw in section 1.2 the Structured Meaning Account and the Partition Semantics both treat 'only' and exhaustivity as identical. In this way we cannot account for examples of constituent questions and answers in Hungarian where the occurence of 'only' makes a significant difference, as in example (25).

In section 2 I suggested a pragmatic account of 'only' in multiple focus constructions where a pair-reading comes together with two 'only's. With the following examples we obtain another argument for a pragmatic analysis of 'only' in Hungarian. Consider the following examples:

(24)   a.   Ki   hívta   fel   Emilt?
            (who called VM Emil.acc)

            'Who called Emil?'

       b.   ANNA hívta   fel   Emilt.
            (Anna called VM Emil.acc)

            'It is Anna who called Emil.'

       c.   Csak ANNA hívta   fel   Emilt.
            (only Anna   called VM Emil.acc)

            'Only Anna called Emil.'

(25)   a.   Kik   hívták   fel   Emilt?
            (who.pl called.pl VM Emil.acc)

            'Who called Emil?'

       b.   #ANNA hívta   fel   Emilt.
            (Anna   called VM Emil.acc)

            'It is Anna who called Emil.'

       c.   Csak ANNA hívta   fel   Emilt.
            (only Anna   called VM Emil.acc)

            'Only Anna called Emil.'

For the question in (24a) the answers with or without 'only' (24b and 24c) are semantically equivalent, saying that Anna and nobody else called Emil. The focus in (24b) expresses exhaustive identification, thus the interpretation is as follows:

(26) $called(a,e) \wedge \forall x \in Alt(a)[called(x,e) \rightarrow x = a]$

Therefore it seems that the appearance of *csak* 'only' in (24c) does not make any difference, since it is interpreted as (26), too. But consider example (25) where we pose the same question in plural, so we make an expectation explicit of more persons calling Emil. Question (25a) cannot be answered with a simple identificational focus, but (25c) – with 'only' – is felicitous. Considering the above example I propose that it is not the 'only' that is responsible for the exhaustive meaning. What 'only' does here is simply cancelling the expectation, and therefore I claim, that 'only' in answers has a pragmatic rather than a semantic function. This idea is similar to Zeevat's (to appear) proposal about 'only'. In his examples 'only' seems to be superfluous and he concludes that the function of 'only' is less semantic and more pragmatic than was assumed before. He suggests two possible ways to solve this problem. The first one is that 'only' has a pragmatic function to cancel the expectation of the questioner, and the second one is that 'only' makes exhaustivity stronger in the sense that it expands the extension of the restriction on the hidden wh-phrase in the topic. Considering the Hungarian data I prefer the first solution. In the following I will discuss some examples of Hungarian focus and 'only'-sentences and present my proposal to try and solve the above problems.

To explain what is going on in (24) and (25) I use Groenendijk and Stokhof's (1984, 1991) theory of questions and answers. In this theory the meaning of an interrogative determines what its possible complete semantic answers are. The semantic interpretation of an interrogative is an equivalence relation over the set of possible worlds, thus an interrogative sentence denotes a partition of logical space. Every block of the partition induced by ?φ contains the possible worlds where the extension of φ is the same, thus the meaning of a question is a set of propositions, the set of complete semantic answers to the question.

(27) $[\![?\vec{x}\phi]\!] = \{(w,v) \in W^2 \mid [\![\lambda\vec{x}\phi]\!]^w = [\![\lambda\vec{x}\phi]\!]^v\}$

For example, if we have a relevant domain $D = \{Anna, Rena, Tomi\}$ who might have called Emil then the question *'Who called Emil?'* (=24a) expresses an eight-block partition:

(28)

$\lambda w.\neg \exists x.called(x,e)(w)$	*nobody*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow x = a$	*anna*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow x = r$	*rena*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow x = t$	*tomi*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow [x = a \vee x = r]$	*anna* and *rena*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow [x = a \vee x = t]$	*anna* and *tomi*
$\lambda w.\forall x.called(x,e)(w) \leftrightarrow [x = r \vee x = t]$	*rena* and *tomi*
$\lambda w.\forall x.called(x,e)(w)$	*everybody*

The question in example (24) is equated with the partition in (28). The focus expresses exhaustive identification, thus it contains an implicit exhaustivity (*EXH*) operator (along Groenendijk & Stokhof, 1984, 1991). Consequently, the proposition that a sentence with identificational focus denotes is one of the propositions in the partition induced by the underlying question; the answer with identificational focus is a complete semantic answer[5]. Thus identificational focus selects one block from the partition, or equivalently, it eliminates all blocks but one from the partition. In case of (24b) the focus selects the block containing the proposition *only Anna called Emil*.

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[5]For the simple cases.

(29)

nobody	*anna* and *rena*
anna	*anna* and *tomi*
rena	*rena* and *tomi*
tomi	*everybody*

$P \rightarrow$

Question (25) has an explicit expectation from the questioner's side: (s)he thinks that there was more than one person (from the relevant domain) who came. This expectation should be interpreted as a *restriction* on the partition:

(30)

nobody	*anna* and *rena*
anna	*anna* and *tomi*
rena	*rena* and *tomi*
tomi	*everybody*

$P \nrightarrow$ $\leftarrow P'$

For the identificational focus only the restricted area (dashed lines) is accessible to select a block. Therefore we cannot reply to (25a) with (25c), because the block where the proposition is *only Anna called Emil* is not among the available ones, but we can reply with (31). It follows from this that it is not the case that the exhaustive focus is out as an aswer for plural questions.

(31)   ANNA és TOMI hívta   fel Emilt.
       (Anna and Tomi called.3sg VM Emil.acc)
       'It is Anna and Tomi who called Emil.'

Thus the answer with an identificational focus is a complete semantic answer and also a complete pragmatic answer.

In fact, for question (25a) it is not excluded to give an answer that expresses that Anna and nobody else called Emil, but in case of (25a) we need *csak* 'only' to go explicitly against the previous expectation of the questioner. Thus *csak* 'only' cancels the restriction, whereby the blocks which were excluded before "pop-up" again, so they become accessible for the identificational focus to select one of them. It follows that the exhaustive identification – namely selecting a block from the partition – is the function of the identificational focus, and *csak* 'only' has a pragmatic effect on the domain restriction.

Given these observations we may wonder 'What is happening in (24c)?' In question (24a) the questioner does not have any expectation about how many people came, but we can answer with an 'only'-sentence. I claim that in this case the use of 'only' in the answer gives information about the answerer's previous expectations, namely the answerer expected more people to come. But according to the questioner's information state this additional information is irrelevant. Nevertheless, it shows, too, that (24b) and (24c) are slightly different and the use of 'only' in (24c) is not redundant.

The main idea outlined above can also be applied to multiple constituent questions and their answers with multiple foci. As we saw in example (14), in Hungarian there are two possible structures for questions containing two wh-phrases, and these two different structures have a different meaning.

(32)   a. Ki   kit   hívott fel? (=14a; pair-list)
           (who whom called VM)
           'Who called whom?'

   b. #ANNA hívta   fel   EMILT.
      (Anna   called VM Emil.acc)
      'It is the Anna, Emil pair of whom the first called the second.'

   c. Csak ANNA hívta   fel   EMILT.
      (only Anna   called VM Emil.acc)
      'It is the Anna, Emil pair of whom the first called the second.'

(33)   a. Ki   hívott fel   kit?   (=14b; complex)
          (who called VM whom)
          'Who called whom?

       b. ANNA hívta   fel   EMILT.
          (Anna called VM Emil.acc)
          'It is the Anna, Emil pair of whom the first called the second.'

       c. #Csak ANNA hívta   fel   EMILT.
          (only Anna   called VM Emil.acc)
          'It is the Anna, Emil pair of whom the first called the second.'

Example (32) perfectly fits in the previous picture; the explanation is the same as it was for (24). Over a domain of three persons $D = \{Anna, Emil, Tomi\}$ the partition determined by (32a) has 512 blocks[6] , and since (32a) is a pair-list question, we have an expectation that there were more calls, that restricts us to the blocks containing more than one pair.

(34)

$$P \not\rightarrow$$

nobody called nobody
$\langle anna, emil \rangle$
$\vdots$
$\langle tomi, rena \rangle$
$\langle anna, emil \rangle$ and $\langle rena, tomi \rangle$
$\vdots$
everybody called everybody

For (32a) the answer (32b) is infelicitous, we cannot simply select the block where there is only the $\langle Anna, Emil \rangle$ pair. It is not accessible because of the expectation (restriction) of the questioner, we need 'only' again to go against the expectation. (32c) is felicitous, because the restriction is cancelled, so the identificational focus can select the block where there is only one pair: Anna and Emil.

Example (33) is a bit different, since here both the questioner and answerer already know that there is only one pair of persons of whom the call-relation holds. The question in (33a) denotes a partition where the blocks contain one pair.

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[6]Assuming that people can call themselves.

(35)   Loose meaning: Strict meaning:

$\langle anna, emil \rangle$
$\langle anna, tomi \rangle$
$\vdots$
$\langle tomi, anna \rangle$
$\langle tomi, emil \rangle$

$\langle anna, emil \rangle$
$\langle emil, anna \rangle$

The complex focus can select one of the blocks, but (33c) is out. The explanation is that in this case both the questioner and answerer know that there is one pair, thus there is no expectation from both sides, so for 'only' there is nothing to cancel, therefore the use of 'only' in this context is out.

4   Multiple focus readings

Example (12) raises the question what linguistic factors play a role to disambiguate between the two meanings. In this section we will discuss these factors: intonation, syntactic structure, appearance of 'only' and information structure. Our claim is that in order to interpret multiple foci we have to take into consideration all these factors. First of all we discuss intonation, which seems to have a very important role here. For sentence (12) two different intonation patterns lead to two meanings.

(36)   Csak ANNA hívta fel csak EMILT. (=12)

    a. Csak Anna hívta fel   csak Emilt.

        H*-L L   L-H%   H*-L $\Longrightarrow$ pair-reading / *scope-reading

      'It is the Anna, Emil pair of whom the first called the second.'

    b. Csak Anna hívta fel csak Emilt. $\Longrightarrow$ *pair-reading / scope-reading

        H*-L L   L L   H*-L

      'Only Anna called only Emil. [the others more or nobody]'

In (36a) both focussed constituents get pitch accent, before the second focused element there is a little stop (end of an intonation phrase) and just before this break there is a rising intonation. This intonation pattern gives us the complex focus (pair) reading. In (36b) all words between the focussed constituents are deaccented and there is no break[7]. This pattern gives the double focus (scope) reading. Intonation has the role to yield the intended meaning, however, there is no one-to-one correspondence between intonation patterns and meanings, since for (10) and (20b) the pair-intonation leads to the pair-reading, but the scope-intonation leads either to the pair-reading again or ungrammaticality. Interestingly only for structure (12) we can get the scope-reading, for structures (10) and (20b) the scope-reading is out.

(37)   Csak ANNA hívta fel EMILT. (=20b)

    a. Csak Anna hívta fel   Emilt.

        H*-L L   L-H% H*-L $\Longrightarrow$ pair-reading / *scope-reading

    b. Csak Anna hívta fel Emilt.

        H*-L L   L H*-L $\Longrightarrow$ *pair-reading / *scope-reading

(38)   ANNA hívta fel EMILT. (=10)

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[7]I will not discuss here the question whether the second focused phrase here is deaccented as well or gets pitch accent. There are different opinions on this topic, according to my intuitions the second focus is not deaccented.
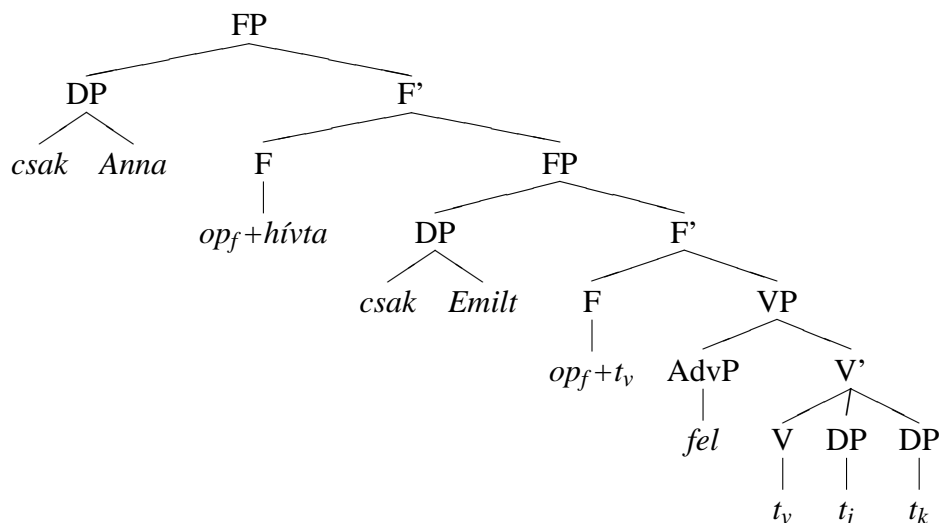
    a. Anna hívta fel   Emilt.
       H*-L L   L-H% H*-L $\Longrightarrow$ pair-reading / *scope-reading

    b. Anna hívta fel Emilt.
       H*-L L   L H*-L $\Longrightarrow$ *pair-reading / *scope-reading

This suggests that the scope-reading is only possible with 'only'-phrases. We cannot even ask *Who is that, who called Emil and nobody else?* by using (39a), but we can by using (39b). Thus it seems that to express scope-meaning without 'only' we need a special syntactic structure.

(39)   a. *Ki hívta fel EMILT?
         (who called VM Emil.acc)
         'Who called Emil (and nb. else)?'

      b. Ki   hívta EMILT   fel?
         (who called Emil.acc VM)
         'Who called Emil (and nb. else)?'

É. Kiss (1998) proposes an elegant syntactic analysis of multiple focus constructions. She claims that F(ocus)P(hrase) (Bródy 1990) iteration is possible. According to this analysis, the second focused constituent also moves to an FP position, while the verb moves to the first F-head going through the second one. This syntactic analysis supports the cases where we have semantically two focused elements, hence two focus/exhaustivity operator where the first takes scope over the second one.

(40)   Csak ANNA hívta csak EMILT   meg.
       (only Anna   called only Emil.acc VM)
       'Only Anna called only Emil. [the others more or nobody]'

Alberti and Medve (2000) gives a different syntactic structure for the pair-reading which they call "mirror focus" (41) construction versus the "double focus" construction from É. Kiss.

(41)   (Csak) ANNA hívta fel (csak) EMILT.
       ((only) Anna   called VM (only) Emil.acc)
       'It is the Anna, Emil pair of whom the first called the second.'
       ... [$_{FP}$ [$_{VP}$ ... t_k t_u XP t_l ...]$_i$ [$_{F'}$ F+(V+V$_k$)$_s$ [$_{VP}$ t_s t_i t_u XP$_l$ ...] t_i]]

The advantage of this analysis is that it assigns a different syntactic structure for the complex focus, where there is only one focus phrase and consequently only one focus/exhaustivity operator which is applied to an ordered pair of arguments. The disadvantage is that these analyses

suggest a correspondence between the readings and the structures respectively. However, the picture is not as simple as that, since it can be the case that structure (40) gets the pair reading or structure (41) gets the scope reading. Consider, for example, the following example with the same word order as in (40), but with the strong intonation pattern we can get the complex focus reading.

(42) ANNA hívta   EMILT   fel.
      (Anna rescued Emil.acc VM)

    a. Anna hívta Emilt fel.
       H*-L L-H% H*-L L% $\implies$ pair-reading

    b. Anna hívta Emilt fel.
       H*-L L   H*-L L% $\implies$ scope-reading

There are at least three factors that play a role in the interpretation of multiple focus constructions: the use of different intonation patterns, different word order and the occurence of 'only'.

5   Conclusion and further issues

The paper presented some investigations on Hungarian focus interpretation concentrating on the multiple (double) focus constuctions. We saw that the interpretation of Hungarian exhaustive focus and 'only' is problematic for the current semantic analyses in several cases like (12b) where we have two 'only's but a complex focus reading; and also in the answers of singular and multiple wh-questions. On the basis of these examples we claim that exhaustivity operators and 'only' are distinct (in Hungarian) and 'only' in Hungarian has a strong pragmatic nature which goes against expectation. In section 4 we saw several linguistic considerations that give the "complex focus" or double/real multiple focus reading of multiple focus constructions. On the one hand there is a strong intonation pattern which gives the complex focus reading, but there is no one-to-one correspondence between intonation and interpretation[8], since word order or the appearance of 'only' can modify it. Thus, the main claim is here that for the disambiguation between these two readings, intonation, syntactic structure and 'only' work together.

In the research on exhaustivity, 'only' and multiple foci, there is another important issue: the scalar reading. According to Hungarian data scalar 'only' and non-scalar 'only' behave differently in scope-relations.

(43) Csak HÁROM FIÚ tud befogni csak ÖT CSIKÓT.
      (only three   boys can hitch   only five foals.acc)
      'Only three boys can hitch only five foals.'

Example (43) allows for four possible readings in principle: 1) the first 'only'-phrase (OP) is scalar and the second OP is non-scalar/exhaustive, 2) the first OP is scalar and the second OP scalar, 3) the first OP is exhaustive and the second OP is scalar, and 4) the first OP is exhaustive and the second OP is exhaustive. However, from these four possible readings the ones where the first 'only'-phrase gets a scalar interpretation are ungrammatical. This suggests the following generalization: if we have two only-phrases where the first takes scope over the second one, then the first one cannot be scalar, but has to be exhaustive and distributive. However, this does not mean that scalar 'only'-phrase cannot take wide scope. There are examples where the second focus phrase is without 'only', and the first focus phrase with 'only' can have both a scalar and non-scalar reading (with different underlying questions).

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[8]The same conclusion is drawn by Šafářová's (to appear) work.

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