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## Arndt Riester & Edgar Onea (eds.):

## Focus at the Syntax-Semantics Interface





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## Preface

This volume contains a significant part of the talks presented at the Workshop on "Focus at the Syntax-Semantics Interface", which took place on April 6th-7th, 2008 at the University of Stuttgart. The aim of the workshop was to address some major semantic and syntactic issues of focus theory: focus representation, compositionality, focus interpretation, syntactic marking, presuppositions, focus sensitivity as well as focus movement. In addition, related phenomena such as the semantics of discourse particles and the relation between discourse prominence and case marking were raised. We hope that this volume will contribute to the clarification of some of these questions as did the workshop itself.

The event was supported by the SFB 732 "Incremental Specification in Context", funded by the German Science Foundation (DFG) and came about as a result of the cooperation between the projects A1 (Incremental Specification of Focus and Givenness in a Discourse Context) and C2 (Case and Referential Context).

Project A1 is a joint project of the Experimental Phonetics group and the group of Formal Logic and Philosophy of Language, both at the IMS. Principal investigators are Grzegorz Dogil and Hans Kamp, and the subject of the project is to develop annotation methods for information structure, based on formal semantic insights, to apply these in the annotation of written transcripts of speech corpora and to investigate the correlation between these information structural annotations and their phonetic and phonological manifestations.

Project C2, with Klaus von Heusinger as principal investigator, discusses the impact of the referential context for Differentiated Object Marking (DOM) in Spanish, Romanian, Turkish and Mongolian. DOM describes the property of certain languages to morpho-syntactically (case-)mark the direct object if it is highly 'individuated', i.e. high on the scales for animacy, definiteness and topicality. The project develops a semantic model that accounts for the interaction of these three quite different categories and unifies them in the new concept of 'referential context', which determines the specification process.

We would like to thank all participants of the workshop for their contributions and useful comments; Grzegorz Dogil, Klaus von Heusinger and Hans Kamp for supporting our efforts, Torgrim Solstad for editorial support, and Sabine Mohr, the coordinator of the SFB 732, as well as our student assistants who helped us organize the event.

Stuttgart. May 12th, 2009

Edgar Onea Arndt Riester

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## Pe-marking and Referential Persistence in Romanian

## Sofiana Chiriacescu & Klaus von Heusinger University of Stuttgart

#### Abstract

The fact that in Romanian a direct object is sometimes morphologically marked by the particle *pe* and sometimes not is a long attested phenomenon. Diverse studies on Differential Object Marking (DOM) explained most occurrences of *pe* as a case marker by means of the features animacy, definiteness, and specificity. The only cases left unexplained are those in which a direct object realized as an unmodified definite or indefinite nominal phrase are optionally marked, whereby the difference in meaning between the two alternative constructions is subtle though significant.

Post-verbal indefinite human direct objects are optionally *pe*-marked. Based on a synchronic study, we will show that besides specificity, discourse prominence also influences the case-marking of indefinite direct objects. Case marked indefinite direct objects show the property of "referential persistence", i.e. a direct object introduced by an indefinite *pe*-marked nominal phrase will be more often taken up in the subsequent discourse than its unmarked counterpart. In conclusion, we will add another feature to the local parameters triggering DOM another feature, namely discourse prominence.

## **1** Introduction

As in many other languages, direct objects are differentially marked in Romanian. The syntactic position of the direct object realized by means of a nominal phrase is compatible with two forms of expression, namely a non- marked and a marked form. The latter form is morphologically realized by means of the particle pe. The former autonomous lexeme pe with a directional meaning underwent a process of decategorization becoming a grammatical marker of the direct object (see Mardale 2002 for a synthesis of the discussions on this theme). However, even if pe shares some properties of prepositions, it does not have a prepositional meaning.

The decision in favor of one of the two realization forms depends on the characteristics of the entity that is realized as a direct object. Animacy, definiteness, specificity, and topicality are the factors that are considered to be the main triggers of the marked direct object form. DOM-marking starts at the more prominent part of these scales, covering areas of different length (Farkas 1978, Dobrovie-Sorin 1994, von Heusinger & Onea 2008). So, whether a direct object will be obligatorily, optionally or never marked by *pe* depends on the amount of features reunited in the object in cause.

However, even if the factors licensing DOM as well as its development have been amply discussed in the literature so far (Cornilescu 2001, Chiriacescu 2007, Stark& Sora 2008), there still remained certain constructions that could not be accounted for by means of the above mentioned factors. These not elucidated cases involve direct objects realized by means of a post-verbal unmodified definite or indefinite nominal phrase. In such cases, both the marked and the unmarked direct object constructions coexist, whereby the difference in meaning between the two forms is difficult to analyze.

In the present paper we will focus on direct objects realized as indefinite nominal phrases which involve alternations not clearly delimitated/ explained alternations between a *pe*-marked and an unmarked construction. The examples (1) illustrate the above mentioned variation. The common context sentence (A) can be continued either as in (1a) where the indefinite direct object is *pe*-marked, or as in (1b) where the indefinite direct object is not preceded by *pe*:

(1)	A:	Ce face Petr	u? (What doe	s Peter do?)	
	a.	Petru îl	vizitează	pe u	n prieten
		Peter CL	visits	PE a	friend
		'Peter visits	a friend.'		
	b.	Petru vizite	ează un	prieten	
		Peter visits	s a	friend	
		'Peter visits	a friend.'		

Constructions as the one presented above underline the limitations as well as the insufficiency of the general acknowledged criteria that trigger DOM to account for the controversial cases of *pe*-marking in Romanian. Not considering arbitrariness for such cases of free variation, we believe that a more detailed picture of the principles involved in *pe*-marking arises form an analysis of the particular discourse context where these constructions occur. Consequently, we propose the introduction of an additional discourse- based parameter, to explain more subtle differences such as those within "minimal pairs"- the ones involving indefinite unmodified noun phrases.

It is generally assumed that the form of the DP or the DP-type (proper name, definite NP etc.) reflects different accessibility relations between the expression and the referent introduced earlier in the text. This relation is often generalized in the form of "Accessibility Hierarchies" or "Givenness Hierarchies". In cases like these, the form of the DP "looks backwards". We hypothesize that there are also formal means to determine the activation level of the referent introduced by the expression, i.e. the form of the DP "looks forward" and simultaneously gives some structural information to the discourse. Furthermore, we show that *pe*-marking in Romanian displays the property of "referential persistence" of a referent introduced by a direct object, i.e. the number of occurrences of co-referential expression in the following text. This claim is weaker than to assume that DOM reflects topicality.

In Section 2 we will take a look at the local parameters that license the differential marking of objects in Romanian. In this sense, we will enumerate the contexts in which different type of NPs can be *pe*-marked, focusing on definite and indefinite

expressions. Global parameters such as the lexical semantics of the verb, secondary predication etc. will be excluded from the present analysis. In the last part of this section we will analyze two 'parallel contexts' which introduce an indefinite NP into the context. We notice that differentially marked direct objects receive some preferential treatment in the production and perception of a discourse. In Section 3 we will sketch out the concepts of topic continuity and accessibility, which will represent the staring point for the analysis of the discursive nature of the *pe*-marked indefinite NPs. A special emphasis will be put on the concept of discourse prominence and its subcomponent referential persistence. In Section 4 we will show that *pe*-marked direct objects realized as indefinite NPs are taken up in the subsequent discourse more often than their unmarked counterparts, signalizing a higher degree of activation. Section 5 contains the summary of our findings and the concluding remarks, as well as some open remained questions.

## **2** Local factors determining DOM

As we have already stated in the introductory part of this paper, animacy, definiteness and specificity are the three main factors that determine the *pe*-marking of a direct object. In the following, we will briefly enumerate the distribution of *pe* as a case marker along these scales, however, at the heart of the discussion will be entities realized as definite or indefinite direct objects in postverbal position. Furthermore, we will also have to generalize over many exceptions because of lack of space. For a detailed picture of this distribution, see Farkas (1978), Gramatica Academiei Române (2005), Chiriacescu (2007), von Heusinger & Onea (2008), Stark & Sora (2008), among others.

The *pe*-marked direct object is usually doubled by a co-indexed unstressed / weak pronoun like in (6a). Accusative clitics are disallowed without *pe*-marked objects in post-verbal position as in the sentence (6b). Whenever the direct object occupies a post-verbal position, the doubling of the clitic generally correlates with the *pe*-marking. So, DOM marked pronouns, proper names and definite NPs are doubled by a clitic while DOM-marked indefinite NPs can occur both with and without a clitic. Nevertheless, the construction in which the direct object is doubled by a clitic is used more often (see Gramatica Academiei Române 2005, Chiriacescu 2007, von Heusinger & Onea 2008).

#### 2.1 Animacy

The table in (2) illustrates the distinction between human and non-human objects in relation to DOM. Animate objects (animals) may only go to the human site if they are highly relevant for humans, otherwise they remain unmarked. Few non-human direct objects receive *pe*-marking.

(2)	Animacy scale for <i>pe</i> -marking in Romanian						
	human	> no- human					
	most DOs	Ø					

At the present stage of the evolution of the language, *pe*-marking typically targets those direct objects which denote human entities. This prediction points the acceptability of sentences such as that in (3a), and the ungrammaticality of those as the one in (3b):

(3)	a.	Am	văzut	-0	pe	femeia	frumoasă
		Aux.	saw	CL	PE	womai	n beautiful
		'I saw	the bea	utiful w	oman.'		
	b.	*Am	văzut	-0	pe	pisica	frumoasă
		Aux.	saw	CL	PE	cat	beautiful
		'I saw	the bea	utiful c	at.'		

#### 2.2 **Personal pronouns and proper names**

Personal pronouns referring to animate entities are always marked with *pe* and doubled by a clitic in present-day Romanian:

(4) El o iubestepe ea He CL loves PE she 'He loves her.'

Direct objects realized as reflexive pronouns, the interrogative and relative pronouns *care* and *cine* ("that/ who") referring to animates as well as inanimates, demonstrative pronouns (except *asta* "this".FEM.SG referring to neuter nouns) are also preceded by *pe*. The negative pronoun *nimeni* ("nobody") and the indefinite pronouns are also differentially marked with *pe* when they replace a noun referring to an individual. Proper names referring to humans or strongly individuated, personified animals are regularly case marked with *pe* when they appear in the direct object position:

(5)	Am	văzut	0	pe	Maria/ Lassie
	Aux.	saw	CL	PE	Mary/ Lassie
	'I saw	Mary/	Lassie		

Exceptions from this rule are proper names referring to names of countries or cities, even if these names are used metonymically, denoting the inhabitants of a city.

#### 2.3 Definite nominal phrases

The examples in (6a) and (6b) below intend to exemplify the possible alternations with definite modified NPs, starting from the common context sentence (A), which licenses

the definiteness of the direct object in the subsequent sentences. The direct object *o* fată brunetă ('a brunetă girl') introduced by means of an indefinite NP in the context sentence (A) is taken up in the continuation sentences (6a) and (6b) by means of the same definite NP which is modified by the adjective brunetă ('brunette'). If no other semantic and/or syntactic restrictions are present in the sentence, definite NPs that are further modified, generally take the case-marker *pe*, as in (6a). Constructions of the other type, in which the modified direct object is not *pe*-marked, like in (6b), tend not to be preferred:

(6)	A:	O fată brune blonde girl	etă întâlnește fat ).	ta blondă.(A br	unette girl me	ets the		
	a.	Fata	blondă o	salută <i>pe</i>	fata	brunetă		
		Girl.DEF	blonde CL	salutes PE	girl.DEF	brunette		
		'The blonde	girl salutes the	brunette girl.'				
	b.	Fata	blondă	salută <i>fata</i>	brui	ıetă		
		Girl.DEF	blonde	salutes girl.D	DEF brur	nette		
	'The blonde	'The blonde girl salutes the brunette girl.'						

The *pe*-marked direct object is usually doubled by a co-indexed unstressed / weak pronoun like in (6a). Accusative clitics are disallowed without *pe*-marked objects in post-verbal position as in the sentence (6b). Whenever the direct object occupies a post-verbal position, the doubling of the clitic generally correlates with the *pe*-marking, the referentiality scale and animacy. So, DOM marked pronouns, proper names and definite NPs are doubled by a clitic while DOM-marked indefinite NPs can occur both with and without a clitic. Nevertheless, the construction in which the direct object is doubled by a clitic is used more often (see Gramatica Academiei Române 2005, Chiriacescu 2007, von Heusinger & Onea 2008).

At sentence level, DOM is disallowed whenever the definite direct object (whether further modified or not) is modified by a possessive Dative that occurs in preverbal position. Furthermore, when a definite unmodified direct object is suffixed by the definite article in the absence of further modifiers, the *pe*-marking is also blocked. However, to keep the story simple, we will neither explain nor enumerate the blocking effects and the exceptions found within the class of definite unmodified NPs. It suffices to emphasize at this point that, in the case of direct objects realized by means of a definite nominal phrase, Romanian language users can generally choose between two constructions, like the ones in (7a) and (7b) below:

(7)	A:	O fată întâlne	ește un p	rieten (A g	irl meets a	friend).
	a.	Prietenul	0	salută	pe	fată
		Friend.DEF	CL	salutes	PE	girl
		'The friend sa	alutes th	e girl.'		-
	b.	Prietenul	salută	fat	a	
		Friend.DEF	salutes	s gir	1.DEF	
		'The friend sa	alutes th	e girl.'		

Both (7a) and (7b) are grammatical and have the same propositional content. Depending on the context, speakers tend to prefer one construction over the other. Such cases which were only marginally discussed in the literature so far are amply analyzed in our next article (von Heusinger & Chiriacescu, to appear).

#### 2.4 Indefinite nominal phrases

In the case of post-verbal, indefinite human direct objects, pe-marking is optional; however, the parameters that might influence the DOM-marking are not quite clear, this being a typical instance of "fluid" constraints (see de Malchukov & de Hoop 2007, de Swart 2007). In what follows, we test different types of specificity: scopal specificity with intensional and extensional operators and epistemic specificity in transparent contexts.

Scopal specificity, whether with extensional or intentional operators, triggers pe-marking. While the sentence (8a) is ambiguous between a specific reading (or wide scope) and a non-specific (or narrow scope) reading, the non-specific reading in (8b) is ruled out due to the presence of pe (Dobrovie-Sorin 1994). The variation between wide and narrow scope is maintained for constructions with intentional operators, like in (9):

(8)	Exter	isional c	operators	(unive	rsal qua	antifiers	)		
	a.	Toți	bărbați	i	iubesc	0	femeie		
		All	men		love	а	womar	ı	
		'All n	nen love	a wom	an.' (sp	ecific/ r	non-spe	cific)	
	b.	Toți	bărbați	i	0	iubesc	pe	0	femeie
		All	men		CL	love	PE	a	woman
		'All n	nen love	a/ this	woman	.' (only	specific	c)	
(9)	Intens	sional o	perators						
	a.	Ion	caută		0	secreta	ră		
		John	looks f	or	а	secreta	ry		
		'John	looks for	r a secr	etary.'	(specifi	c/ non-s	specific)	)
	b.	Ion	0	caută	-	pe	0	secreta	ră
		John	CL	looks f	for	PE	а	secreta	ry
		'John	looks for	r a secr	etary.'	(only sp	pecific)		-

The indefinite NP o secretară ('a secretary') in (9a) could refer to a specific as well as a non-specific individual, while the sentence (9b) only allows a specific interpretation of the individual introduced in the sentence by means of a morphologically marked indefinite direct object.

In a "transparent" context, the contrast between (10a) and (10b) may be explained with epistemic specificity. While in (10a) the particular circumstances of the referent for a friend are not important, (10b) has a reading in which the speaker may or wish to communicate more information of the direct object. The situation becomes

even more complex, since we find, though marginally, examples like (10c) with pe, but without clitic doubling.

(10)	Transp	arent co	ontext					
	a.	Petru	a	vizitat	un	prieten		
		Petru	Aux.	visited	a	friend		
		'Petru	visited	a friend	.'			
	b.	Petru	1	-a	vizitat	pe	un	prieten
		Petru	CL	Aux.	visited	PE	a	friend
		'Petru	visited	a friend	.'			
c.	Petru	a	vizitat	pe	un	prieten		
		Petru	Aux.	visited	PE	a	friend	
		'Petru	visited	a friend	.'			

This very interesting variation hints towards are more complex systems of contrasts (see von Heusinger & Onea 2008 for a detailed analysis). We will concentrate in the following on the variation between (10a) and (10b), which is not sufficiently described by epistemic specificity.

The discourse factor of topicality is also a strong trigger of the differential marking of direct objects. In cases like in (11a) below, the direct object becomes highlighted, playing a special role within the current discourse due to its topicalization and because of the pe-marker. If the sentence is constructed with a topical object, in the absence of the DOM-marker pe, like in (11b), then the object loses its special status:

(11) Topicality

PE a boy CL called 'A boy was called by the parents.'	părinții
'A boy was called by the parents.'	parents
h Un hõigt striggu nõrintii	
u. Un valat strigati parinții	
A boy calls parents	
'A boy was called by the parents.'	

Topicality seems not to be general enough to account for the not elucidated examples like that in (10).

#### 2.5 Summary

The next table (12) comprises the referential contexts in which direct objects are *pe*marked in Romanian. Besides the type of phrase through which the objects are realized, the table also makes a clear distinction in the domain of indefinite nominal phrases with respect to specificity. So, indefinite non-specific NPs are not differentially marked.

Referentiality beare for permarking in Romanian for numan direct objects								
pers.	> propr.	> def. NP	> indef.	> indefinite				
pron.	noun		spec. NP	non-spec.NP				
obligatory		obligatory (with exceptions)	optional	Ø				

(12) Referentiality Scale for *pe*-marking in Romanian for human direct objects

As we could see so far, besides situations in which the morphologically marked form and the unmarked one are in complementary distribution (as it was the case with pronouns and proper names), excluding one another, there are also cases of free variation which allow both forms. Definite NPs are usually preceded by *pe* but examples in which the *pe*-marked form co-occurs with the unmarked form exist. (For an extensive discussion of these constructions, see von Heusinger & Chiriacescu, to appear).

Unmodified indefinites in direct object position are optionally marked with *pe*. We could see above, that specificity is a factor which 'disambiguates' contexts in which both, the *pe*-marked and the unmarked form, are allowed. So, on the one hand, the absence of the marker before an indefinite human object is compatible with a specific and non-specific interpretation of the NP in question. On the other hand, an indefinite NP object preceded by *pe* is interpreted as referring to a specific entity.

However, animacy, definiteness and specificity cannot thoroughly account for the distribution of pe with the free variation found in the domain of unmodified indefinites in contexts like that in (10). Neither topicality, nor other global parameters (like the lexical properties of the governing verb or secondary predications, etc.) are general enough or useful to explain the variation found with indefinites.

In what follows, we will account for the problematic examples involving indefinites by adding a more general parameter on the list of the factors licensing DOM in Romanian. We will use the gradual concept of "topic continuity" introduced by Givon (1981), to show that *pe*- marked indefinites are more prominent in the discourse than their unmarked counterparts.

## **3** Topic continuity, accessibility, and indefinite reference

Before the seminal work of Givon, the concept of topic was understood in an intuitive way, a sentence was therefore conceived as containing at most one topic. Givon (1981, 1983) was the first to introduce the graded concept of "topic continuity" (the situation in which the same topic extends over several clauses) for the behavior of discourse referents across more than one sentence. This behavior is mirrored by the form of

referential expressions used, as it can be seen in (13). He showed that an entity realized as a zero anaphor is an accessible topic and is most continuous, while an indefinite NP is less accessible and therefore usually discontinuous.

(13) zero anaphors

indef.NPs

[most continuous/ accessible topic] [discontinuous/ less accessible topic]

Assuming that more important referents tend to be more anaphorically accessible and cataphorically persistent, Givon (1981, 1983) proposed three measures for referential continuity. The three "measurements of topic continuity" listed by Givon (1983) and repeated by us in (14), correlate with the form and type of reference used:

- (14) Three factors of "topic continuity"
  - i. *Referential Distance / Look back*
  - ii. Potential Interference/ Ambiguity / Competition
  - iii. Persistence/Look forward

The first factor, "referential distance" (i) determines how recently an entity has been mentioned, by looking at the sentences on the left of the referent. The second factor that plays a role in the activation of a referent is the so called "potential interference" (ii) which can arise between semantically compatible referents. The third factor "persistence" (iii) measures how long the entity will remain in the discourse after it was introduced for the first time. The way in which an entity is referred to reflects the speaker's intentions about the role this entity will play in the subsequent discourse. These measures determine the activation status of the referent in question. Because the first and the third factor often overlap and the second is not relevant for the present analysis, we will only look at the "persistence" of a referent introduced in the discourse.

#### **3.1** Referential Distance and Accessibility Hierarchies

Accessibility/ giveness/ salience theories offer a procedural analysis of the referring expressions, as marking different degrees of mental accessibility. In this framework, where "accessibility" is regarded as a gradient category rather than a categorical one, as in DRT, a discourse referent can be more or less accessible. The basic idea behind this theory is that referring expressions are actually accessibility markers by giving evidence to the addressee on how to retrieve the appropriate mental representation for an entity. In conclusion, the referential form of the referent mirrors its accessibility status and its prominence in the discourse. There have been many attempts to capture the correlation between the accessibility of an entity and the referential expression through which this entity is realized, for example Prince's (1981) "Familiarity Scale", Ariel's (1988) "Accessibility Hierarchy" or Gundel, Hedland & Zacharski's (1993) "Giveness Hierarchy" which is exemplified in (15).

#### (15) Givenness Hierarchy (Gundel, Hedland & Zacharski 1993)

in focus >	activated >	familiar >	uniquely identifiable	> referential >	type identifiable
it	t that, this		<i>the</i> N	indefinite <i>this</i> N	a N
more accessible					

This approach suggests that the mental accessibility of an entity has a strong impact upon the reference form which will be chosen to refer to it. The examples 16 (a-f) show the relation between the referential form and the mental accessibility of the referent it designates:

- (16) a. I couldn't sleep last night. It kept me awake.
  - b. I couldn't sleep last night. **That** kept me awake.
  - c. I couldn't sleep last night. That dog (next door) kept me awake.
  - d. I couldn't sleep last night. **The dog** (next door) kept me awake.
  - e. I couldn't sleep last night. This dog (next door) kept me awake.
  - f. I couldn't sleep last night. A dog (next door) kept me awake.

The hearer of the (16f) sentence only has to know what a dog looks like to understand the least restrictive construction "a dog". However, the hearer of a sentence like that in (16a) cannot understand the most restrictive form "it" unless s/he has a concrete mental representation of the dog the speaker is talking about. It is the correlation between different mental representations and the referring expression that are important in Gundel's approach.

As it became obvious in (15) above, there are two determiners which can precede a NP in English in a specific indefinite context: the indefinite article *a* and the determiner *this* (the referential and not the deictic *this* determiner). However, these two forms cannot be used interchangeably. Ionin (2006) notes that besides their different scopal behavior (*this*-determiners do not take narrow scope with respect to intensional or modal operators and negations), the two forms also differ with respect to the noteworthiness property. The examples 17(a) and (b) underline the latter difference:

- (17) a. He put  $\sqrt{a}$  #this 3\$ stamp on the envelope, so he wants to send the letter.
  - b. He put  $\sqrt{a}/\sqrt{this}$  3\$ stamp on the envelope and realized only afterwards that it was worth 100\$.

If the speaker uses *this* over a in (17a), s/he conveys additional information about the NP headed by the determiner. Accordingly, the hearer expects that the speaker will talk about the stamp again, perhaps explaining what the noteworthy quality of the stamp is. Because this expectation remains unfulfilled in (17a) in contrast to (17b), the usage of *this* is rendered infelicitous. So, in the so called "transparent context" as in

(17), a noteworthy referent can be preceded by *this* if it will be implicitly or explicitly referred again (c.f. Prince 1981).

We will see in Section 4. that the apparent optionality of the *pe*-marked construction and the unmarked one can be explained (in most contexts) in a similar manner as the variability presented above.

# **3.2** Discourse prominence and the grammaticalization of the indefinite article

Indefinite expressions do not "look back" or refer to already introduced referents in the same way as definite expression. Therefore, Ariel (1988) does not include indefinite expression into her scale. However, as already stated, Gundel et al. (1993) assume two kinds of indefinite NPs - one specific and one non-specific. Givon (1981) and Wright & Givon (1987) give more types of indefinites in order to explain the development of the indefinite article at different stages. They distinguish between specific and non-specific uses of indefinite expressions, among others. However, they observe that specificity (understood as referentiality) cannot be applied to the contrast between two forms in simple (transparent) sentences in the past tense, as in (18) and (19) (Givon 1981: 36):

(18)	ba	hena ish-xad	etmol	ve-hit	xil le-da	aber ve-hu	
						Street Hebrew	I
	came	here man-one	yesterday	and-st	arted to-talk	and-he	)
	'A man came in yesterday and started talking and he [].'						
(19)	ba	hena ish	etmol,	lo	isha	Street Hebrew	I
	came	here man	yesterday,	not	woman		
'A man came in, not a woman!'							

Givon (1981: 36) comments on the example (for stage 1 of the indefinite article):

"The presentative formula in (1) [= (18)], with VS syntax, introduces a new referential argument into the discourse in subject position and that argument remains salient, it is 'talked about'. The subject of (2) [= (19)] is *logically* just as referential, but *pragmatically* its exact identity is *incidental* to the communication. Rather its *type membership* or *generic* properties is the gist of the communication. In Street Hebrew 'one' – in its reduced, de-stressed form – is obligatory used in (1) but cannot be used in (2)."

Wright & Givon (1987, 12-13) argue that the pragmatic or discourse concept of "referential importance" must not be confounded with the semantic concept of "referentiality" or the information structural concept of "topic". Rather, they account for it by the following "measurable concepts":

- (20) Parameters for "referential importance" Givon & Wright (1987, 12-13)
  - i. Text frequency: Total number of occurrences in the text.
  - ii. Persistence: number of occurrences in the ten clauses directly following the first occurrence in the discourse
  - iii. Thematic importance: as judged by native speakers
  - iv. Semantics status: referential vs. non-referential

The "presentational" use of indefinite expressions is the starting point for the development of an indefinite article in many languages. In the next section we investigate the effects of *pe*-marking in terms of its persistence and text frequency.

## 4 Referential persistence

In this section we will illustrate the persistence of a *pe*-marked referent by comparing this type of construction with the one in which the referent in direct object position is not preceded by *pe*. The first article in (21) contains a direct object that was introduced by means of *pe* in the discourse, whereas in the second article (22), the same indefinite direct object occurs without *pe*. The two article extracts relate the same shooting event in the same way; the only difference being the form of realization of the two objects.

```
(21) pe-marked DO^1
[1] Neculai Florea, de 40 de ani, viceprimarul
                                                     [1] The 40-year-old Nicolae Florea, the vice
satului Horodniceni, și-a pus poliția pe cap după
                                                     mayor of the Horodniceni village, angered the
ce l-a împuşcat cu un pistol cu gloanțe de cauciuc
                                                     police after he shot a young man from the same
                                                     village with a gun with plastic bullets.
pe un tânăr din localitate.
                                                     [2] The incident took place during the night of
[2] Incidentul s-a petrecut în noaptea de 10 spre
                                                     February 10<sup>th</sup> in the discotheque whose owner is
11 februarie, la discoteca ce aparține soției
                                                     Florea's wife, while the police were notified in
viceprimarului Florea și a fost reclamat la poliție
în cursul după amiezii, la ora 15:40.
                                                     the course of the afternoon at 15:40.
[3] La ora respectivă, Vasile M., de 24 de ani,
                                                     [3] At that time, the 24-year-old Vasile M, from
din comuna Horodniceni, pro s-a adresat postului
                                                     the Horodniceni village complained to the police
de poliție reclamând că pro a fost împuşcat în
                                                     that he was shot in the leg by the vice-mayor
picior de viceprimarul Neculai Florea.
                                                     Neculai Florea.
[4] La Horodniceni s-a deplasat în aceeași zi o
                                                     [4] A team of the IPJ Suceava went to
echipă operativă a Serviciului arme, explozivi,
                                                     Horodniceni to elucidate the case.
substante toxice din IPJ Suceava, pentru a
elucida cazul.
[5] Din primele verificări efectuate s-a stabilit că
                                                     [5] In keeping with the first findings, it was
în cursul nopții, la discoteca viceprimarului, pe
                                                     established that, during the night, at the vice
fondul consumului de alcool, a avut loc o
                                                     mayor's discotheque, an altercation took place
altercație, iar Neculai Florea a folosit pistolul cu
                                                     due to alcohol consumption and Neculai Florea
gloante de cauciuc împotriva lui Vasile M., pe
                                                     used his gun with plastic bullets against Vasile
care l-a împuscat în picior, rănindu-l.
                                                     M, whom he shot in the leg, hurting him. [6]
[6] Viceprimarul Neculai Florea sustine că a fost
                                                     The vice-mayor Neculai Florea sustains that he
nevoit să facă uz de armă, întrucât a fost agresat
                                                     had to make use of his gun, as he was aggressed
de tânărul în cauză.
                                                     by the mentioned young man.
```

<sup>&</sup>lt;sup>1</sup> http://www.obiectivdesuceava.ro/index.php?ids=26841&page=articol

<ul> <li>[7] A spus că în cursul nopții de 10 spre 11 februarie, în discoteca administrată de soția lui a izbucnit un scandal între două grupuri rivale de tineri.</li> <li>[8] "Soția mea m-a chemat și am intervenit ca să liniștesc apele.</li> <li>[9] Am încercat să stau de vorbă, să-i calmez, dar băiatul acela m-a lovit în piept și era cât pe ce să</li> </ul>	<ul> <li>[7] He said that in the night on the 10<sup>th</sup> of February, a scandal broke up between two rival young men groups in the discotheque administered by his wife.</li> <li>[8]. My wife called me and I came to calm down the situation.</li> <li>[9] I tried to calm them down by talking to them, however, that boy hit me in the chest and he almost</li> </ul>
(22) <i>pe</i> -unmarked $DO^2$	
<ul> <li>[1] Viceprimarul Neculai Florea, din comuna Horodniceni, este cercetat de poliție după ce în noaptea de sâmbătă spre duminică a împuşcat în picior <b>un tânar</b> de 24 de ani la discotecă.</li> </ul>	<ul> <li>[1] The vice mayor Neculai Florea from the village Horodniceni is verified by the police after he shot a 24-year-old young man in the leg in the night from Saturday to Sunday in a discotheque.</li> <li>[2] The vice mayor, who is a PNG member, took</li> </ul>
[2] Viceprimarul, care este membru PNG, a scos pistolul pentru a interveni într-o încăierare între tineri, care avea loc în discoteca familiei sale.	his gun out in order to intervene in a quarrel which started in his family's discotheque between some young men.
[3] El este asociat unic, iar soția sa administrator.	administrator. [4] The police found out that the <b>young man.</b>
<ul> <li>[4] Poliția a stabilit că tânărul împuscat, Vasile Mihai, pe fondul consumului de alcool, pro a fost implicat într-un scandal, iar viceprimarul a intervenit pentru a-l stopa.</li> </ul>	Vasile Mihai, was shot due to alcohol consuming, that (he) was involved in a scandal, and that the vice mayor intervened in order to stop him. (no further co-referential expressions)
(no ruriner co-referential expressions)	

Before analyzing the persistence of the direct objects, it is also important to underline the fact that in (21), it is the other man, Neculai Florea, who is the topic of the discourse, and not the *pe*-marked DO. Furthermore, it is also worth noting that the two examples in (21) and (22) do not contrast in their epistemic specificity.

A striking observation with respect to DOM is the fact that the *pe*-marked direct object in (21) displays a higher discourse prominence than the direct object which is not preceded by *pe* in the discourse, because it displays the potential to generate further co-referential expressions. This feature of DOM marked indefinite direct objects is underlined on the one hand by the fact that the referent of this object is taken up in the next nine sentences 8 times, while the referent of the not *pe*-marked direct object in (22) was mentioned again in the next eleven sentences only 3 times. The structures of the above given examples are summarized in the following table (23):

 $<sup>^2</sup>$  http://www.9am.ro/stiri-revista-presei/2007-02-13/un-viceprimar-a-impuscat-un-tanar-in discoteca.html

	(21) indef. NP. [+pe]	(22) indef. NP [-pe]
Sentence 1	Ø	Ø
Sentence 2	PN, pro, pro	Ø
Sentence 3	Ø	Ø
Sentence 4	Ø	(def.NP+Adj.+PN), pro,CL
Sentence 5	PN, pers.pron, PN	Ø
Sentence 6	def. NP	Ø
Sentence 7	Ø	Ø
Sentence 8	Ø	Ø
Sentence 9	def. NP	Ø

On the other hand, the discourse prominence of the *pe*-marked direct object is evidenced by the first anaphoric item. In article (21), the newly introduced referent *un*  $t\hat{a}n\check{a}r$  ('a young man') is taken up in the following discourse by a proper name. However, a proper name can be opted for only in cases in which the presupposition licensed by the proper name can be accommodated within the context. This does not hold for the second article (22), in which the referent of the not *pe*-marked direct object is mentioned again by means of the definite NP  $t\hat{a}n\check{a}rul \,\hat{i}mpuşcat$  ('the young man that was shot').

The next table in (24) is a modified version of the table presented under (12). Besides the distribution of *pe*-marking along the Referentiality scale, the table also contains the factor referential persistence:

		1	<u> </u>			
Ref Scale	pers.	> PN	> <i>def.</i>	> indef NP		> non-arg
Disc Prom	pron.		NP			NP
				spec.	non-spec	
topic	+	+	+	+	+	n.a.
ref persistence	+	+	+	+	n.a.	n.a.
non-prominence	+	+	$+(\pm)$	-	-	-

(24) Referentiality Scale for *pe*-marking in Romanian for human direct objects

Indefinite specific objects which are important for the upcoming discourse are characterized through a high persistence and will therefore be marked by *pe*. Accordingly, indefinite specific objects which are not that relevant for the discourse in question will not be taken up too often in the subsequent discourse. The lack of prominence of such objects is formally expressed by the absence of *pe*.

## 5 Conclusion and open questions

As we have showed in this paper, *pe*-marking expresses different functions, while one of them is to indicate a higher activation in terms of referential persistence of the direct

(23)

object marked in this way. To assume that the direct object preceded by *pe* is more activated is a weaker claim than to assume that DOM-marking expresses topicality.

It is still open to debate whether the referential persistence can also be found in relation to definite NPs and also if this feature is a property that only holds for synchronic Romanian data, or if it also applies to diachronic texts.

Several problems of the empirical base of the hypothesis still remain unresolved. One of these problems might be the fact that other parameters (as for example different verb classes still exist (see von Heusinger 2008 for Spanish) that could interact with *pe*-marking. Another major problem is the fact that we could find only a limited number of instances of *pe*-marking with indefinite direct objects under "controlled conditions" as in the examples (21) and (22) above.

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## Deriving the Properties of Structural Focus

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## 1 Goal

This paper proposes a theory of structural focus derived via focus movement which can account for all the focus-related facts attested in Hungarian, among them facts which other current theories cannot explain. It will claim that focus movement serves the purpose of creating a predicate–subject structure, in which the focus-moved constituent functions as a specificational predicate. The properties of both the focus and the background follow from the independently established properties of specificational predications.

Section 2 of the paper briefly introduces two recent theories of focus movement: the 'movement for stress' theory of Szendrői (2003), and the 'movement for the checking of the exhaustive identification feature' theory of Horvath (2005), pointing out the problems which they cannot handle. Section 3 presents the proposal argued for. Section 4 demonstrates how the problems observed in section 2 receive a natural solution in the proposed framework. Section 5 discusses a further consequence of the proposed theory, involving the definiteness effect attested in presentational constructions.

## 2 Some current theories of structural focus

#### 2.1 Structural focus as a phonological phenomenon

Szendrői's (2003) influential theory of structural focus aims to provide a unified analysis of English-type prosodic focus and Hungarian-type structural focus: both are claimed to be motivated by the stress–focus correspondence principle (Reinhart 1995, and Zubizarreta 1998), according to which

(1) The focus of a clause is a(ny) constituent containing the main stress of the intonational phrase, as determined by the stress rule.

Whereas in an English-type language the stress-focus correspondence is usually attained by stress shift, in a Hungarian type language it is claimed to be achieved by the movement of focus into the position of main stress, at the left edge of the verbal projection. (Szendrői analyzes the Hungarian sentence as a VP. Topic constituents are claimed to be extrametrical adjuncts, which are skipped by the stress rule.) The V

movement accompanying Hungarian focus movement serves the purpose of establishing a functional projection the specifier of which provides a landing site for focus movement. Szendrői's 'movement for stress' theory of focusing raises several problems, namely:

(i) The structural focus in Hungarian does not necessarily bear main stress. If it is preceded by a universal quantifier (preposed to the left edge of the VP via overt Q-raising), or certain types of adverbs, it can lack primary stress – as pointed out by Horvath (2005). In the following examples, the initial quantifier and adverb bear primary stresses, whereas the focus (spelled in capital letters) can be unstressed:

(2) a. 'Mindenkit [FoCP JÁNOS hívott meg] everybody-ACC John invited PRT 'JOHN invited everybody. [For everybody, it was John who invited him.]'
b. 'Valóban [FoCP JÁNOS késett el] indeed John was.late PRT

'Indeed it was John who was late.'

The focus is unstressed if it is given; e.g. (2b) would be felicitious in a context of the following type:

- (3) a. Azt gyanítom, hogy [<sub>FocP</sub> JÁNOS késett el]. 'I suspect that it was John who was late.'
  - b. 'Valóban [FocP JÁNOS késett el]

'Indeed it was John who was late.'

The intuition is that (3b) involves a second occurrence prosodic focus, with the first focus given, hence destressed – however, Szendői does not give any hint regarding how such an analysis could be executed in the framework outlined by her.

(ii) A more severe problem is that the uniform treatment of the English-type prosodic focus and the Hungarian-type structural focus hides their interpretational difference. It remains unaccounted for why structural focus – and only structural focus – has exhaustive interpretation; why (2a), unlike its English counterpart, is true if and only if everybody was invited only by John.

The exhaustivity of structural focus was first demonstrated by Szabolcsi (1981), on the basis of solid evidence often quoted in the literature ever since.<sup>1</sup> Here let me only present two little known arguments.

According to Horn (1972), Levinson (2000), Kadmon (2001), and others, the basic meaning of a numerical modifier n in natural language is 'at least n'. Indeed, this is the meaning a Hungarian numerical modifier is associated with whether the modified expression is in postverbal argument position (4a) or in pre-focus topic position (4b). (Pragmatic factors can impose an upper limit on n – however, the upper limit is always a mere implicature which can be easily cancelled.) In the preverbal

<sup>&</sup>lt;sup>1</sup> See also É. Kiss (1998; to appear), and Horvath (2005, 2006). For a somewhat different view, treating the exhaustivity of focus as an implicature, see Wedgwood (2005).

focus position, however, the numeral n can only mean 'exactly n' (4c), no matter what the pragmatic conditions are – which is derived from the [+exhaustive] feature of focus, i.e., the exclusion of all alternatives but the one denoted by the focused constituent in É. Kiss (to appear).

- (4) a. János [PredP meg keres egy milliót havonta] John PRT earns one million-ACC monthly 'John earns a/one million a month.' (one million or more)
  - b. [<sub>TopP</sub> Egy milliót [<sub>PredP</sub> meg keres János havonta]] 'A/one million, John earns a month.' (one million or more)
  - c. János [<sub>FocP</sub> EGY MILLIÓT keres meg havonta] 'It is one million that John earns a month.' (exactly one million)

As shown by Szabolcsi (1981), *ha* 'if' clauses are also interpreted differently in and out of focus. Conditionals, like other types of embedded clauses in Hungarian, have a pronominal head. When focused, the embedded clause is obligatorily extraposed, leaving only the pronominal head in the focus position of the matrix clause (5c). Whereas a *ha*-clause functions as a simple conditional both in postverbal position and in topic position, it is a biconditional (an *if and only if* clause) in focus position, which is again derived from the exhaustivity of focus by Szabolcsi (1981).

- (5) a. Fel-hívlak [(akkor<sub>i</sub>) [ha János megérkezett]<sub>i</sub>] up call-I-you then if John arrived 'I will call you if John has arrived.'
  - b. [(Akkor<sub>i</sub>) [ha János megérkezett]<sub>i</sub>], fel-hívlak.'I will call you if John has arrived.'
  - c. [FocP AKKOR<sub>i</sub> hívlak fel, [ha János megérkezett]<sub>i</sub>] 'I call you **if and only if** John has arrived.'

If focusing is merely movement for stress, as claimed by Szendrői (2003), the interpretational differences between (4a,b) and (4c), and between (5a,b) and (5c) cannot be predicted.

(iii) Szendrői's theory cannot handle the acceptibility difference between (6b) and (6c). Both sentences intend to answer the question *What happened*?, i.e., both are all-new sentences. In the English equivalents, the object bears primary stress in both cases. If focusing is movement for stress, the object should be focusable in both sentences. In (6c), however, the focus-movement of the object is unacceptable.

- (6) a. Mi történt? 'What happened?'
  - b. McCAINT választották elnökjelöltnek a republikánusok az USÁ-ban. McCain-ACC elected candidate the republicans the USA-in 'Republicans elected McCain presidential candidate in the USA.'
  - c.%BENAZIR BHUTTÓT gyilkolták meg a fanatikusok Pakisztánban. Benazir Bhutto-ACC murdered PRT the fanatics in Pakistan 'Fanatics murdered Benazir Bhutto in Pakistan.'

This example is also problematic for the focus theory of Fanselow (2006), according to whom focus movement is nothing but the movement of an accented constituent, and the focus position is not associated with any special semantic or pragmatic function. (iv) According to Szendrői (2003: 37) the focus of an answer is the constituent that is questioned. In question-answer pairs like that in (7), however, it is the other way round: it is the familiar, non-questioned constituent of the question that has to undergo focus movement in the answer – contrary to prediction:

(7) a. Ki volt Fleming?/Mit tudsz Flemingről?
'Who was Fleming?/What do you know about Fleming?'
b. Ő/FLEMING fedezte fel a penicillint. he/Fleming discovered PRT the penicillin 'It was him/it was Fleming who discovered penicillin.'

A proper theory of structural focus should also account for examples of this type.

# **2.2** Structural focus as a constituent with an exhaustive identification operator

In reaction to Szendrői's theory of focus, Horvath (2005, 2006) has developed an alternative theory intended to account for the exhaustivity of the Hungarian focus, while maintaining the unified treatment of English and Hungarian focus. She claims that structural focus is an XP with an invisible Exhaustive Identification operator (EIOp) in its specifier, attracted to the specifier of an Exhaustive Identification Phrase in order to check the Exhaustive Identification features of its head. The EIOp requires association with focus.

This theory only eliminates problem (ii) of the stress-driven theory of focus movement, and also raises new problems, among them:

(v) The theory – correctly – acknowledges the structural difference between sentences of type (8a) and those of type (9a), which becomes transparent under negation. In (8a), *orvos* 'doctor' occupies the specifier of EIP, where it precedes the verb also when negated:

(8) a. Az apám [EIP ORVOS [volt]]. my father doctor was 'My father was a doctor.'
b. Az apám [NegP nem [EIP ORVOS [volt]] my father not doctor was 'My father wasn't a doctor.'

In (9a), on the other hand, *jó orvos* 'good doctor' occupies the position of the verbal modifier (identified here as Spec,PredP), where it is preceded by the V, undergoing head movement, in negative sentences:

(9) a. Az apám [PredP jó orvos [Pred' volt]]. my father good doctor was 'My father was a good doctor.'
b. Az apám [NegP nem [volt [PredP jó orvos]]] my father not was good doctor 'My father wasn't a good doctor.'

What Horvath's theory leaves unexplained is why orvos - as opposed to  $j \acute{o} orvos -$  is to be focused in the unmarked case.

(vi) In the framework of the EIOp theory, the object in (10) is associated with an EI operator, the effect of which is cancelled by the expression *többek között* 'among others'. It seems uneconomical to introduce an operator and immediately neutralize it.

 (10) Többek között JÁNOST hívtam meg. / JÁNOST hívtam meg többek között. among others John-acc invited-I PRT 'It was John, among others, that I invited.'

(vii) Hungarians tend to move to focus position also constituents whose interpretation is inherently exhaustive.

(11) Andrásnak [FocP DECEMBER 13-ÁN van a születésnapja] Andrew December 13th-on has the birthday-his 'It is on December 13th that Andrew has his birthday.'

December 13th exhausts the set of days of Andrew's birth. It seems redundant, hence uneconomical, to mark its exhaustivity also with an EI operator. (viii) It does not follow from the theory why universal quantifiers cannot be focussed:

(12)\*MINDEN FIÚT hívtam meg. every boy-ACC invited-I PRT 'I invited everybody.'

(ix) It is unexplained why a bare nominal, ungrammatical in argument position, becomes perfectly acceptable if focussed:

(13) a.\*Évát fel-kérte szőke fiú. Eve-ACC PRT asked[for a dance] blond boy-NOM
b. Évát SZŐKE FIÚ kérte fel. 'It was a blond boy that asked Eve for a dance.'

#### **3** The proposal: focus as a specificational predicate

The present proposal adopts Higgins's (1973) analysis of the English pseudo-cleft focus, and Huber's (2000) analysis of the Swedish and German cleft focus to Hungarian structural focus.<sup>2</sup> In the theory developed by Higgins and Huber, pseudo-cleft and cleft sentences instantiate a type of predication structure called specificational predication. The wh-clause represents the subject of predication, and the (pseudo-)cleft constituent, identified as the focus, represents the predicate. In specificational predication constructions, neither the subject, nor the predicate is claimed to be referential.<sup>3</sup> In the formulation of Huber (2000), the subject determines a set, and the predicate referentially identifies it, by listing its members. The predicate, i.e., the (pseudo-)cleft focus, is exhaustive because the referential identification of a set consists in the exhaustive listing of its members. The subject is associated with an existential presupposition because only an existing set can be referentially identified.

I claim that focus movement in Hungarian – and presumably in other languages, as well – serves the purpose of establishing a predicate–subject articulation to be interpreted as a specificational predication construction. The focus-moved constituent functions as the specificational predicate, and the post-focus sentence part (the background) functions as the subject of predication.<sup>4</sup> The subject of predication, an open sentence, determines a set, which the focus identifies referentially. The referential identification of the set determined by the background is predicted to entail the exhaustive listing of its members. Furthermore, the background is predicted to be associated with an existential presupposition.

<sup>&</sup>lt;sup>2</sup> For previous formulations of this proposal, see É. Kiss (2006a,b). For an extension of Higgins' (1973) analysis to English truncated clefts, see Mikkelsen (2004).

<sup>&</sup>lt;sup>3</sup> Mikkelsen (2004) argues that the predicate of a specificational construction is, nevertheless, more referential than its subject.

<sup>&</sup>lt;sup>4</sup> Although in subsequent stages of the derivation, Q-raising and topicalization can remove certain constituents of the post-focus unit (the subject of predication), they remain represented by their copies in postverbal position.

## 4 The facts explained

From the proposed analysis, all the properties of the Hungarian focus construction fall out, including the problematic facts enlisted under (i)-(ix) above.

Focus movement is triggered by the need of creating a predicate-subject structure, with the predicate and the subject mutually c-commanding (or m-commanding) each other.

The fact that focus-movement goes together with V-movement seems to be independently motivated, as focusless negated sentences and e.g. imperatives also involve V-movement. Apparently, a neutral predicate, with its preverbal position occupied by the secondary predicate: a verbal particle, a predicative NP or a predicative AdvP (see, e.g., (14)) cannot be further extended by an operator; it can merely be merged with Q-raised quantifiers, adverbials, and topics. The neutral predicate can only be combined with a further operator if it becomes V-initial, i.e., if it undergoes V-movement (see, e.g., (15)). Thus V-movement signals a kind of type-shift: the predicate phrase becoming the argument of a higher predicate.



'Peter called up Eve.'



This is how the proposed analysis accounts for problems (i)-(ix). Problem (i), illustrated by examples (1a,b), concerns the question why the structural focus of the Hungarian sentence does not always bear main stress. In the proposed framework, there is no direct relation between structural focus and stress. In Hungarian, Nuclear Stress is assigned to the leftmost constituent in a phrase. There is also a stress-reduction rule which destresses given (anaphoric) constituents. If the filler of Spec,FocP is preceded by quantifiers and/or adverbials adjoined to FocP, they are also assigned Nuclear Stresses, as shown in (1a) and (1b). Any of the constituents marked as 'strong' by the Nuclear Stress Rule can also be destressed, if it is anaphorically given. This is what happens to the focus in both (1a) and (1b).

Problems (ii), (vi) and (vii), related to the exhaustivity of structural focus, are explained by the specificational predicate function of focus. Specification means the referential identification of a set by listing its members, hence it is understood to be exhaustive, as illustrated by examples (4) and (5). However, exhaustivity is not asserted in focus constructions; it is merely entailed. That is why focusing is not redundant even when exhaustivity appears to be neutralized right away by the overt expression *többek között* 'among others' (cf. (10)), and when it is also lexically entailed, as in (11). Sentences (10) and (11) are not formulated as specificational constructions in order to mark the exhaustivity of focus. (11) serves the purpose of

<sup>&</sup>lt;sup>5</sup> The postverbal section of the Hungarian sentence, i.e., the vP in (14), and the PredP in (15), can be freely linearized. The optimal postverbal order is that observing Behaghel's (1932) Law of Growing Constituents - see É. Kiss (2008).

identifying the day when Andrew has his birthday, whereas (10) serves the purpose of specifying the set of those I invited. This set is specified in part by an R-expression (*János*), in part by a kind of pronominal expression (*többek (között)* '(among) others'). Examples (6) and (8)-(9), illustrating problems (iii) and (v), show that specificational predication is licensed if the background is associated with an existential presupposition.<sup>6</sup> Although both (6b) and (6c) are all new sentences answering the question *What happened*, in the case of (6b) it is part of the knowledge base of the speaker and the listener that there is someone that the Republicans will elect, or have already elected, presidential candidate in the USA.<sup>7</sup> In the case of (6c), the focus-background articulation is impossible because the background lacks an existential presupposition: When Benazir Bhutto was murdered, it was not shared knowledge that there was someone that fanatics would murder or had already murdered in Pakistan.

The minimal pair in (8) and (9) illustrate the same point. In the case of a grown-up person it is presumed that he has an occupation; when asking (8a) we are merely interested in the specification of this occupation. Thus (8a) amounts to asking 'is it true that the profession that your grandfather had is the profession *doctor*?' Being a good doctor, on the other hand, is not the specification of a generally held assumption.

Problem (iv) is also related to problems (iii) and (v). The question is why we have to focus *Fleming/he* in (7b), when *Fleming/he* represents the only given element in the sentence. Observe another question–answer pair illustrating the same point:<sup>8</sup>

(16) a. Who was Jack Ruby?

b. [FocP Ő [NNP lőtte le Lee Harvey Oswaldot]] he shot PRT Lee Harvey Oswald 'It was him who shot Lee Harvey Oswald.'

Both (7b) and (16b) are clear instances of specificational predication: their backgrounds determine a set associated with an existential presupposition (the set 'who invented penicillin', and the set 'who shot Lee Harvey Oswald', respectively), which the focus referentially identifies. It is not a requirement that the set to be specified must be given information, and the listing of its member(s) must be new; it can just as well be the other way round, as happens in (7) and (16).

The focus-background articulation of the answer is not licensed if the background is not associated with an existential presupposition; thus the discourse in

<sup>&</sup>lt;sup>6</sup> According to Geurts and van der Sandt (2004), the background is associated with an existential presupposition in all types of focus constructions. They call the following rule 'the null hypothesis':

<sup>(</sup>i) The Background-Presupposition Rule

Whenever focusing gives rise to a background  $\lambda x.\varphi(x)$ , there is a presupposition to the effect that  $\lambda x.\varphi(x)$  holds of some individual.

<sup>&</sup>lt;sup>7</sup> Delin & Oberlander (1995) make a similar claim about the subordinate clause of cleft sentences: they count as presuppositional also when they convey information that is expected to be known.

<sup>&</sup>lt;sup>8</sup> The English equivalents of (7b) and (16b) are called comment-clause clefts by Delin and Oberlander (1995).

(17) is unacceptable – unless there has already been discussion about a certain man who shot his wife.

(17) Who was John Smith?
%[FocP Ő [NNP lőtte le a feleségét]] he shot PRT his wife
'%It was him who shot his wife.'

Problem (viii) was the question why a universal quantifier cannot be focussed. Giannakidou and Quer (1995) have shown that universal quantifiers cannot be used as predicate nominals, in other words, as nominal predicates. If the focus functions as a predicate, the impossibility of focussing a universal quantifier is predicted.<sup>9</sup>

Problem (ix), illustrated by example (13), also represents a consequence of the predicate status of focus. A bare NP, which cannot function as an argument,<sup>10</sup> is grammatical as a predicate in Hungarian:

- (18) a. Éva vőlegénye szőke fiú (volt).
  Eve's fiancé blond boy (was)
  'Eve's fiancé is/was a blond boy.'
  - b. A tettest szőke fiúnak hitték. the offender-ACC blond boy-DAT saw-they 'The offender was seen to be a blond boy.'

In (13b), the bare nominal subject is grammatical because the focus position it occupies is associated with a (specificational) predicate interpretation.

(ii)\*Emőke 'minden örömöm volt.

Emőke all joy-my was

<sup>&</sup>lt;sup>9</sup> Puskas 2000:342) claims that this does not hold in Hungarian, on the basis of examples like (i) Emőke (volt) minden örömöm.

Emőke (was) all joy-my

<sup>&#</sup>x27;Emőke is/was all my joy.'

According to Surányi (2002), the constraint formulated by Giannakidou and Quer (1995) does not apply to *all*-type universal quantifiers. However, in Hungarian, *every* and *all*-type quantifiers do not seem to differ in the relevant respect (neither of them can be focussed). In my analysis, *Emőke* is the predicate nominal in (i), and *minden örömem* is the subject. If *minden örömem* were a predicate nominal, it ought to be able to precede the verb *volt* (occupying first Spec,PredP, and then Q-raised into a PredP-adjoined position). Furthermore, if *Emőke* were the subject, it ought to be able to undergo topicalization, i.e., to occupy an unstressed clause-initial position. Both of these moves are impossible:

<sup>&#</sup>x27;Emőke was all my joy.'

Cf.

<sup>(</sup>iii) Minden örömöm Emőke volt.

<sup>&#</sup>x27;All my joy was Emőke.'

<sup>&</sup>lt;sup>10</sup> In fact, a semantically incorporated theme or goal argument, occupying Spec,PredP, the position of secondary predicates, can be represented by a bare nominal.
## 5 A further consequence of the proposal

The proposed analysis is further supported by the fact that it has good consequences in other areas of grammar, as well. For example, it can explain a curious correlation between focusing and definiteness effect.

As is well-known from the literature (Szabolcsi 1986, É. Kiss 1995, Piñón 2006a,b, Peredy 2008, and the references therein), verbs of (coming into) being and creation require a non-specific theme. Compare:

(19) a. Született egy baba.	b.*A baba született.
was.born a baby	the baby was.born
'A baby was born.'	'The baby was born.'
(20) a. János szerzett egy autót.	b.*János minden autót szerzett.11
John obtained a car	John every car obtained

Interestingly, the focusing of an adjunct, or the focusing of the agent neutralizes the 'definiteness effect', i.e., the non-specificity requirement on the theme; the focusing of the theme, on the other hand, has no such neutralizing effect:

- (21) a. A baba TEGNAP született. the baby yesterday was.born
  'The baby was born YESTERDAY.'
  b.\*A KISLÁNY született. the little.girl was.born
  'THE LITTLE GIRL was born.
- (22) a. Minden autót JÁNOS szerzett.
  - every car-ACC JOHN obtained 'Every car was obtained by JOHN.'
  - b. János minden autót ILLEGÁLISAN szerzett. John every car illegally obtained 'John obtained the car from a relative of his.'

(ii)a. János meg-szerezte az autókat. John PRT obtained the cars ' John obtained the cars.'

<sup>&</sup>lt;sup>11</sup> Hungarian verbs of (coming into) being and creation also have particle verb counterparts, which denote the change of their theme, the existence of which is presupposed. These particle verbs, as opposed to their bare V equivalents, select a [+specific] theme:

<sup>(</sup>i)a. A gyerekek meg-születtek. the children PRT-were.born 'The children were born.'

b.\*Gyerekek meg-születtek.

b.\*János meg-szerzett autókat.

Szabolcsi (1986) derived the (in)definiteness effect illustrated in (19) and (20) from the meaning of the verbal predicates: they assert the (coming into) being of their theme argument; hence the existence of their theme cannot be presupposed; that is why they cannot be associated with a determiner eliciting a [+specific] reading. In (21) and (22), both the verb expressing coming into being and the theme whose coming into being it denotes constitute (part of) the background of a focus–barkground construction, in other words, (part of) the subject in a specificational predication structure. (More precisely, in (22) it is the variable bound by the Q-raised universal quantifier that represents the theme argument in the background/subject of predication.) Recall that the subject of a specificational predication construction is associated with an existential presupposition, i.e., the event of the theme's coming into being is presupposed in both cases; that is why also a [+specific] theme is licensed. However, if the theme is the focus/specificational predicate, no existential presupposition is assigned to it, hence the (in)definiteness effect is not neutralized.

#### **6** Conclusion

The paper has proposed a theory of structural focus which analyzes focus movement as the establishment of a syntactic predicate-subject structure, expressing specificational predication in the sense of Higgins (1973) and Huber (2000). It is claimed that this analysis also accounts for properties of focus movement constructions that current alternative theories cannot explain. The subject of a specificational construction, an open sentence, determines a set, which the predicate (the focus-moved constituent) identifies referentially. The crucial properties of a specificational predication construction are the existential presupposition associated with the subject of predication (only an existing set can be referentially identified), and the exhaustivity of the focus (the referential identification of a set consists in the exhaustive listing of its members). Hence the [+exhaustive] feature of the focus is not asserted, but is always present as an entailment. The specificational predicate-subject of predication (in other words, the focus-background) articulation of the sentence does not correlate with either the new-given division of the information conveyed (the open sentence determining the set to be identified (i.e., the background) can also be new, and the listing of the members of the set (i.e., the focus) can also be given). There is no direct correlation between the focus-background articulation and the stress pattern of the sentence, either (e.g., a given focus can be destressed).

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## Towards a DRT-based Account of Adversative Connectors

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#### Abstract

The paper presents an exploratory DRT-based account of the adversative connector *doch*. It is assumed that *doch* is weakly ambiguous between various relations of contrast, and an underspecified meaning is defined in the framework of UDRT Reyle et al. (2005). It is shown how in concrete discourse, a particular reading is selected from the underspecified meaning representation, depending on the information structure of the sentence, as well as on the syntactic and prosodic properties of the respective *doch*-use. This process is modelled in the framework of the most recent version of DRT Kamp et al. (2005) and the version of DRT that takes into consideration the focus-background division of the sentence Kamp (2004).

## **1** Introduction

The German adversative connector *doch* (Engl. *though*, *but*) is notoriously ambiguous. It has at least five syntactically and prosodically different uses that belong to different parts of speech and express various discourse relations, such as correction, semantic opposition and concession. For instance, *doch* may express the relation *semantic opposition*, as in (1), where two mutually excluding properties are applied to different individuals. In cases like that, *doch* is unaccented, placed before the forefield of the German sentence and categorized as a conjunction:

(1) Hans ist reich, doch Peter ist arm. 'Hans is rich but Peter is poor.'

The connector *doch* may also express different kinds of *concession*, as in (2a) and (2b), where the first conjuncts are interpreted as giving rise to the expectation that the second conjuncts do not hold true. This form of concession is also called *denial of expectation*. Here, *doch* is either accented, placed in the initial field of the sentence and categorized as conjunct adverb (as in (2a)), or is a conjunction (as in (2b)):

- (2) a. Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.
  - b. Das Pferd war klein, seine Beine waren kurz, doch es war der schnellste Renner weit und breit.
    'The horse was small, his legs were short, and yet he was the fastest runner far and wide.'

Another form of concession that *doch* may express is *concessive opposition*, as in (3), where the first conjunct and the negation of the second conjunct are interpreted as consequences from a contextually given claim, e.g. here *the forest paths are strenuous*. Here it is again the conjunction *doch* that we deal with.

(3) Die Waldwege sind steil, doch nicht lang. (from Sæbø (2003))'The forest paths are steep but not long.'

There are further various kinds of *correction* marked by *doch*, like for instance in (4), where the B-utterance asserts the opposite of what utterance A asserts, thus denying the truth of A. Here, *doch* is accented, may be used in isolation and is categorized as a response particle.

(4) A: Es stimmt nicht, dass Peter verreist ist.'It is not true that Peter has left.'B: Doch(, es stimmt).'It IS true.'

A similar case is (5), where at some point in a conversation either speaker A or speaker B asserts "Peter is coming to the cinema" and later A learns that Peter is out of town and B then draws the conclusion that if Peter is out of town, he is not going to the cinema. The *doch*-utterance here does not correct  $A_n$  but the earlier utterance  $A_0/B_0$ . The *doch*-variant that expresses this relation is accented, placed in the middle field of the German sentence and is categorized as an adverb.

(5) A<sub>0</sub>/B<sub>0</sub>: Peter kommt mit ins Kino.
'Peter is coming to the cinema.'
A<sub>n</sub>: Peter ist verreist.
'Peter has left.'
B<sub>n</sub>: Er kommt also DOCH nicht mit ins Kino.
'So he is not coming to the cinema, after all.'

Another example of correction expressed by *doch* is (6), where the B-utterance corrects what the speaker believes is a misconception of the hearer as regards the whereabouts of Peter. This use of *doch* indicates here that A should know that Peter is out of town and should not have claimed that he is coming to the cinema. In corrections like that, *doch* is unaccented, placed in the middle field of the German sentence and categorized as a modal particle.

(6) A: Peter kommt mit ins Kino.'Peter is coming with us to the cinema.'

B: Er ist doch verreist.'He has left, as you should know.'

All uses of *doch* illustrated by (1)-(6) involve a certain degree of contrast. Semantic opposition is the mildest form of contrast where two entities are compared with respect to some properties. Concession involves default expectations that are incompatible with what is asserted, and correction can be seen as an extreme kind of contrast where the contrasted elements mutually exclude each other. I will use the term contrast as the generic term for these relations.<sup>1</sup> Furthermore, all uses of *doch* are historically related, cf. Hentschel (1986). These facts suggest that *doch* can be assumed to be *weakly ambiguous* (cf. Pinkal (1985)) between expressing different kinds of contrast. It is therefore legitimate and desirable to try and unify the various uses in terms of a basic meaning of the connector. It is also desirable to give an account of connectors in a formal theory of discourse, since connectors have various important effects on discourse meaning, and formal theories provide the necessary level of precision for adequately dealing with such complex linguistic phenomena like dicourse connectors.

Earlier attempts to define a common semantics for all *doch*-variants are too abstract or not elaborate enough Helbig (1988), Karagjosova (2001), Lerner (1987). I am currently not aware of any existing DRT-based accounts of connectors and their discourse effects.

In a recent paper Karagjosova (2007), I propose an unitary analysis of *doch* based on Sæbø's analysis of German *aber* Sæbø (2003), where the semantics of these connectors is defined in terms of a contrast presupposition involving negation and topic alternatives. I argue there that the meaning of *doch* is best seen as underspecified and define it in terms of an UDRT alternation Reyle et al. (2005), i.e. a sequence of alternative DRSs. Each alternative DRS represents a version of the contrast presupposition that corresponds to some *doch*-variant and involves different information-structural units, depending on the context in which the variant is used and on its syntactic and prosodic properties. I also hint at a disambiguation algorithm that allows to model the construction of discourses with *doch* in DRT starting from the underspecified representation of the connector and employing information about (i) its syntactic and prosodic properties, (ii) the focus-background structure of the sentence that hosts it, and (iii) the structure of the discourse in which it is used.

In what follows, I elaborate on the question of how the construction of discourses with *doch* can be modelled in a DRT-based approach. I present a DRT-based account of the meaning and discourse effect of this connector. The analysis I present is exploratory and rather sketchy. It tries to get by with the extsting DRT machinery and leaves a number of technical questions open.

The paper is structured as follows. In section 2, I present the contrast presupposition defined by Sæbø for *aber*. Section 3 introduces my analysis of the semantics of *doch* based on Sæbø. Finally, in section 4 I demonstrate how the construction of discourse representations may look like for two of the *doch*-variants, the conjunction *doch* and the conjunct adverb *doch*.

<sup>&</sup>lt;sup>1</sup>The term *adversativity* is also used generically for all types of contrast relations expressed by connectors like *doch*, *aber* and *but*.

## 2 The contrast presupposition

The main idea in Sæbø (2003) is that semantic opposition is the basic contrast relation expressed by *aber* from which other kinds of contrast such as various forms of concession can be derived as a result of generating conversational implicatures based on Grice's Maxim of Relevance. The main observation is that *aber* is sensitive to the information structure of the sentence.<sup>2</sup> More precisely, the contrast between two conjuncts  $C_1$  and  $C_2$ that *aber* indicates, can be seen as a semantic opposition between the contrastive topic of the *aber*-clause  $C_2$  and an alternative to it that is provided by the first conjunct  $C_1$ . For instance in (7), the CT of  $C_2$ , *mittlere*, is opposed to the CT of  $C_1$ , *kleine*, and *kleine* is a contrastive topic alternative of *mittlere*:

(7) [Für [kleine]<sub>T</sub> Betriebe hält sich der Schaden noch in Grenzen]<sub>C1</sub>; [für [mittlere]<sub>T</sub> aber wird er allmählich ruinös]<sub>C2</sub>.
'For small companies, the harm is yet limited; for intermediate-size companies, however, it is becoming ruinous.'

Based on this observation, Sæbø specifies the basic meaning of *aber* in terms of an assertion and a presupposition in dynamic semantics in the following way: a sentence of the form ' $\phi$  *aber*' updates the context  $\sigma$  to a context  $\tau$  iff  $\sigma$  entails the negation of  $\phi$  where the contrastive topic of  $\phi$  is substituted by some alternative, and  $\sigma$  is updated by  $\phi$ . Formally:

(8) 
$$\sigma \llbracket \phi \ \text{aber} \rrbracket \tau \ \text{iff} \ \sigma \models \neg \phi[T(\phi)/\alpha] \ \text{for some alternative } \alpha \ \text{and} \ \sigma \llbracket \phi \rrbracket \tau.$$

In other words the presupposition requires that the context contains the negation of a sentence which is just like the *aber*-sentence except for its contrastive topic. The contrastive topic of the required sentence is a contextual alternative of the contrastive topic of the *aber*-sentence. Consider again (7), repeated below as (9). The presupposition can be verified, since in the negated *aber*-sentence, we replace its contrastive topic *mittlere* for the alternative, here the contarstive topic of  $C_1$  kleine, and get that the harm for small companies is not ruinous. This is entailed by  $C_1$ , since  $C_1$  asserts that the harm is limited.

<sup>&</sup>lt;sup>2</sup>An analysis of *aber* based on similar observations is proposed in Umbach (2005).

- (9) [Für [kleine]<sub> $\alpha$ </sub> Betriebe hält sich der Schaden noch in Grenzen]<sub>C1</sub>; [für [mittlere]<sub>T</sub> aber wird er allmählich ruinös]<sub>C2</sub>.
  - $\sigma \models \neg \phi[T(\phi)/\alpha]$  iff
  - $\sigma \models \neg$ (für mittlere Betriebe wird der Schaden ruinös)[mittlere/kleine] iff
  - $\sigma \models \neg$ (für kleine Betriebe wird der Schaden ruinös)

The topic of the contrast presupposition is defined in Sæbø (2003) as "the portion of the sentence for which the context provides a substitute". Contrastive topics are one such case. Sæbø considers further cases which do not involve contrastive topics. He argues that there we deal with an "implicit topic" that in general is the complement of the apparent focus. A simple example is (10), where the focus is *nicht lang*, and the "implicit topic" is the complement of the focus, namely *lang*. The presupposition is verified: in the negated *aber*-clause, we replace the "implicit topic" *lang* for the focus of the first clause *steil* and get that the context entails that the forest paths are steep, which is indeed so:<sup>3</sup>

(10) Die Waldwege sind [steil] $_{\alpha}$ , aber [nicht [lang]\_{IT}]\_F. 'The forest paths are steep but not long'.  $\sigma \models \neg \phi[T(\phi)/\alpha]$  iff  $\sigma \models \neg (\neg (\text{die Waldwege sind lang})[\text{lang/steil}]$  iff  $\sigma \models \neg \neg (\text{die Waldwege sind steil})$ 

In Sæbø (2003), the "implicit topic" is reconstructed as a result of pragmatic reasoning that involves a process of accommodation which in turn triggers implicatures which generate the concessive readings of the connector. For instance in (10), the "implicit topic" lang vs. nicht lang (or its equivalent kurz) is identified on the basis of the following reasoning: coordination alternatives require a relevant parallel or Common Integrator (CI) Lang (1977) between them. A CI between steep and long is more plausible than between steep and not long or short when it comes to forest paths: both steep and long paths are strenuous. Identifying the CI forest paths are strenuos gives us also the concessive opposition reading of the sentence: the first conjunct supports the proposition that the paths are strenuous, whereas the second runs against it. As pointed out in Karagjosova (2007), however, the process of identifying the implicit topic is not entirely clear. Therefore, I assume that in lack of contrastive topics, aber pertains to the complement of the apparent focus of the *aber*-conjunct, and the alternative is the focus of the first conjunct. The additional pragmatic reasoning on top of the contrast presupposition described above is needed in order to get behind the reason for treating the complement of the focus of the aber-conjunct and the focus of the first conjunct as alternatives.

<sup>&</sup>lt;sup>3</sup>The notion of topic utilized by Sæbø does not correspond to the structural topic. It seems that it can be understood in terms of material that is given or inferable in the present context. Consider for instance the case of contrastive topics. Contrastive topics come with a parallel sentence structure and particular intonation (called "hat contour" in German Fery (1993)) that evoke a set of alternative expressions. The mention of the topic of the first conjunct evokes a set of alternatives from which the topic of the *aber*clause is recoverable and is in this sense given information. In cases like (10), the "topic" is in the scope of the negation, and negation is generally known to trigger the implicature that the opposite is normally the case (cf. e.g. Jacobs (1991)), hence the element in the scope of the negation is in a way given in the context.

## **3** The semantics of *doch*

In Karagjosova (2007), I apply Sæbø's analysis of *aber* on *doch*, since *doch* and *aber* are partly synonymous. I observe there that the information structural units to which *aber* and *doch* pertain when trying to identify and verify the contrast presupposition can be not only contrastive topic or the negation of the focus, but also verum focus, as in (11a), the constituent in the scope of the focussed negation (which I tentatively call "negated background"), as in (11b), or the discourse topic in the case of unaccented middle-field *doch*.

- (11) a. A: Peter  $[lügt]_{\alpha}$  nicht. 'Peter is not lying.' B: Er  $[LÜGT]_{VF}$  aber. 'But he IS lying.'
  - b. Die Waldwege sind steil, doch  $[NICHT]_F$   $[lang]_{NB}$ . 'The forest paths are steep but not long.'

I also notice that when *doch* is interpreted as correction, the topic of the contrast presupposition, i.e. the part of the sentence for which the context provides a substitute, is the complement of the apparent focus, and the topic coincides with the alternative, thus reducing the presupposition to the requirement that the context contains a sentence with the reversed polarity. For instance in (12), the focus is on *doch*, and the complement of the focus is *nicht*, since *doch* asserts the sentence that hosts it. The alternative is the sentence negation *nicht* in the preceding utterance. The presupposition is verified, since the context, here utterance A, contains the negation of the *doch*-sentence.

(12) A: Es stimmt [nicht] $_{\alpha}$ , dass Peter verreist ist. 'It is not true that Peter has left.' B: [Doch]<sub>F</sub>, es stimmt. 'It IS true.'  $\sigma \models \neg \phi[T(\phi)/\alpha]$  iff  $\sigma \models \neg (\neg(\text{es stimmt nicht, dass Peter verreist ist})[\text{nicht/nicht}]$  iff  $\sigma \models \neg(\text{es stimmt, dass Peter verreist ist})$ 

Based on these observations, I argue in Karagjosova (2007) that the semantics of *doch*, as well as that of *aber*, is best captured by enumerating the different ways in which the contrast presupposition may be instantiated in concrete discourse. I formulate the semantics of *doch* as an UDRT alternation, i.e. a disjunction of alternative DRSs, which is a technique used in UDRT Reyle et al. (2005) for specifying the meaning of ambiguous lexical items. The representation in (13) is intended to capture this "meaning potential" of *doch*:



In (13),  $\pi$  and  $\pi'$  are discourse referents for representing clauses, as in SDRT Asher and Lascarides (2003),  $\pi$  is the clause hosting *doch*, and  $\overline{F}$  is the complement of the focus *F*. The representation is intended to express that *doch* triggers the presupposition that there is a sentence  $\pi'$  in the discourse context such that  $\pi'$  is the negation of the result of replacing the respective information-structural unit of  $\pi$  by its corresponding alternative.

The sign ' $\sqrt{}$ ' is an operator used for representing lexical ambiguity Reyle et al. (2005), and underlined discourse referents are anaphoric referents that have to be bound to an antecedent in the context or accommodated. The first DRS in the alternation takes care of cases like (14) where we have contrastive topics, the second of cases like (15), where *doch* pertains to the complement of the focus.

- (14) [Hans]<sub> $\alpha$ </sub> ist reich, doch [Peter]<sub>CT</sub> ist arm. 'Hans is rich but Peter is poor.'
- (15) Die Waldwege sind [steil]<sub> $\alpha$ </sub>, doch [nicht [lang]<sub> $\overline{F}$ </sub>]<sub>F</sub>. 'The forest paths are steep but not long.'

The third alternative DRS captures cases like (12), repeated below as (16), as well as cases like (2a), repeated below as (17), where *doch* is itslef focussed. In both cases, *doch* pertains to the complement of the focus, *nicht*, and the complement of the focus coincides with the alternative.<sup>4</sup>

A: Es stimmt [nicht]<sub>α</sub>, dass Peter verreist ist.
'It is not true that Peter has left.'
B: [Doch]<sub>F</sub>, es stimmt.
'It IS true.'

<sup>&</sup>lt;sup>4</sup>The reason for not having just  $\neg \pi$  in the DRS for this version of the contrast presupposition is the idea that the meaning representation should reflect the contextual conditions under which the *doch* variants are used, more specifically the IS unit to which the respective *doch*-variant pertains.

(17) Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.

'The horse was small, his legs were short, and yet he was the fastest runner far and wide.'

In a way, the meaning specification of *doch* that I propose in (13) is not strictly unitary since it is a disjunction of a number of possible interpretations. On the other hand, it has a common format, and the various *doch*-readings differ from one another mostly with respect to the IS unit to which the connector pertains. This way the meaning specification reflects the main property of discourse connectors, namely their contextual sensitivity, in a rather straightforward way.

The alternative versions of the contrast presupposition represented in (13) reflect the properties of the context in which the connector is used and which determine the interpretation of the relation that the connector expresses in that particular context. It is in this sense that the meaning of *doch* is underspecified: its interpretation in context requires the selection of one of a number of possible mutually related readings under specific contextual conditions.<sup>5</sup>

The above meaning specification also reflects partly the interpretation of the connector *doch* in the respective context. For instance, when *doch* pertains to the contrastive topic of the *doch*-host, its interpretation is semantic opposition, and when it pertains to the complement of the focus of the *doch*-host, it is a form of concession. However, there are additional contextual parameters that co-determine the interpretation of *doch* in a particular context that are not captured in (13). For instance, in cases when the presupposition is reduced, the interpretation of *doch* may be correction or denial of expectation, depending on whether *doch* is positioned in the middle field (correction) or the initial field (denial of expectation). In what follows, I suggest how these additional parameters come into play in a DRT-based account of the way in which a particular interpretation of *doch* emerges from its underspecified meaning under a particular contextual setting.

#### **4** Towards a DRT-based account

The idea is roughly that the DRS construction is informed by the focus annotated syntactic tree of the sentence hosting the connector. The semantic representations are built by means of DRT-construction rules Kamp and Reyle (1993). The construction rules select the reading that corresponds to the syntactic and prosodic properties of the *doch*-variant that is used in the concrete discourse, as well as to the focus-background structure of the discourse. The selected *doch*-reading is a presupposition that in a further step has to be bound to an antecedent in the context or the context must be accommodated, i.e. the content of the presupposition is added to the context on the background of which the sentence is interpreted.

I next go through two examples that illustrate how the construction of representations of discourses in which *doch* occurs may look like in a DRT-based formalism. I

<sup>&</sup>lt;sup>5</sup>Cf. Pustejovsky's cases of lexical underspecification involving a contextual specification of meaning in cases of weak ambiguity (called there "logical polysemy") Pustejovsky (1998)).

focus on the two clause connecting uses of *doch*, namely the conjunction *doch* and the conjunct adverb *doch*.

#### 4.1 Conjunction *doch*

The first example involves the conjunctional use of *doch*, as in (18):

(18) Die Waldwege sind [steil<sub>*F*</sub>], doch [nicht lang]<sub>*F*</sub>. 'The forest paths are steep but not long.'

The focus-annotated syntactic tree of the sentence is presented in (19):<sup>6</sup>

(19)



For the assignment of focus to the constituents in the syntactic structure I assume a system like the one proposed in Riester (2005), where semantic-syntactic constraints are defined by means of which syntactic constituents are marked as being part of the focus or the background of the sentence. The sign  $\sim$  is Rooth's focus interpretation operator, and *C* is a variable that is resolved or accommodated to a set of contextual alternatives Rooth (1992).

In this context, focus is on the VP of the *doch*-sentence, and this is a case where *doch* pertains to the complement of the focus of the conjunct that hosts it. To choose the correct reading for *doch* in this context from the ones specified in (13), we can formulate a DRT-construction rule like CR.doch<sub>Conj</sub>.1 in (20). DRT-construction rules are rules that are applied to the syntactic structure of the sentence. By the application of such rules the discourse representation of the sentence is obtained.

<sup>&</sup>lt;sup>6</sup>I have represented the complete structure with the elided material.

(20)  $CR.doch_{Conj}.1$ 

1.Introduce a presupposed speech act discourse referent  $\pi'$  into the discourse universe.

2.Introduce into the condition set of the discourse representation of the sentence the condition  $\pi' : \neg \pi[\overline{F}(\pi)/F(\pi')]$ .

The application of construction rules is triggered by a particular syntactic configuration. The triggering configuration of this rule would be the one in (21), where the *doch*sentence must exhibit the particular focus-background structure, here wide focus over VP:<sup>7</sup>

(21)



I must refrain here from a more precise formulation of the construction rule and its application. Obviously, there must be some way to instantiate the parameters  $\overline{F}(\pi)$  and  $F(\pi')$  with information about the information structure of the *doch*-sentence and its preceding context, possibly by means of operations defined by the construction rule. I will assume for now that there is such a mechanism without elaborating on it, in order to give just the general idea of how construction rules may be used in the case of assumedly underspecified connectors like *doch*. The construction rules that I am envisaging here are not classical since they are formulated for items introducing presuppositions into the discourse. On the other hand, the idea that the appropriate *doch*-reading is chosen depending on the syntactic and prosodic properties of the sentence that hosts the connector, invites such a solution.

In the most recent version of DRT Kamp et al. (2005), the first step of the DRS construction is a preliminary sentence representation in which the presuppositions of the sentence are explicitly represented. The second stage of the DRS construction is the justification of the sentence presuppositions.

In the DRT version that takes the focus-background division of the sentence into consideration Kamp (2004), focus structure is represented as a triple  $\langle K_0, K_1, K_2 \rangle$  consisting of a restrictor (a condition that restricts the possible values of the focus variable),

(i) Die Waldwege sind [steil<sub>F</sub>], doch [kurz]<sub>F</sub>.'The forest paths are steep but short.'

For the cases involving CT, we will have to formulate yet another rule CR.doch<sub>Conj</sub>.3.

<sup>&</sup>lt;sup>7</sup>There may be cases where only the negation is focussed, and the adjective (or NP) is backgrounded. In such cases a different rule CR.doch<sub>Conj</sub>.2 must be specified because the IS unit that *doch* pertains to is no longer the complement of the focus, but the element in the scope of the negation (the negated background). I.e., a different reading is triggered by this syntactic-prosodic configuration. For cases where the *doch*-sentence is not negated, as in (i), an operator COMP is required which will look into meaning postulates in order to get us e.g. the antonym of a property, which will be the complement of the focus.

a focus frame (corresponding to the background) and the focus constituent. I will leave out the restrictor for simplicity in what follows.

The representation of the first clause is provided in (22). The left part between the angled brackets represents the focus frame, the right part the focus constituent. The focus variables are set in boldface to indicate that they were obtained by abstracting the focus marked constituents from the representation of the sentence thus rendering the focus frame. I ignore here for simplicity the presupposition triggered by the definite description.

(22)



The DRS in (22) represents the context for the interpretation of the *doch*-clause  $\pi_2$ . The representation in (23) provides the preliminary DRS in which the presupposition introduced by *doch* is explicitly represented.

(23)



In the representation of  $\pi_2$ , there are two focus variables that are extracted from the sentence structure of  $\pi_2$ , since focus is on both constituents.<sup>8</sup> The variable *B* is a variable for the Boolean value of the sentence, which is here negative. The presuppositional part is between the curly brackets. Here the original condition  $\pi' : \neg \pi[\overline{F}(\pi)/F(\pi')]$  is transformed into a DRS, where the first condition is the focus frame of  $\pi_2$  except for the property variable Q' which is to be instantiated by an alternative of Q in the context. The second condition is a requirement to find in the context an alternative to the value of the complement of the focus of  $\pi_2$ . The focus of  $\pi_2$  is *nicht lang*, so its complement will be *lang*. The operator *ALT* is intended to get us a contextual alternative to the property *lang*. I.e. *ALT* looks into the context-DRS for an appropriate entity, and this is the property *steil*.<sup>9</sup> We get as a result the following representation, where we have the presupposition that there is a sentence  $\pi'$  in the discourse context with the content  $\neg \neg steil(Waldwege)$ :



In a third step, the presupposition that there is a sentence  $\pi'$  in the discourse context with the required content is verified: the context contains the sentence  $\pi_1$  with the same content (*steil(Waldwege)* is the semantic representation of the sentence when we apply the focus variable to the background). So  $\pi'$  can be resolved to  $\pi_1$ :

(24)

<sup>&</sup>lt;sup>8</sup>How this is done techincally is a question that cannot be addressed here.

<sup>&</sup>lt;sup>9</sup>A more explicit but complicated way is to write in the focus part  $B(Q) = \neg$ lang, and in the *doch*presupposition to have the condition s' : B(Q'(X)), Q' = ALT(COMP(B(Q))), where COMP(B(Q)) will be  $COMP(\neg$ lang) and will give us *lang*, i.e. Q, and *ALT* will get us the alternative *steil*.





Finally, the new DRS is merged with the context.

#### 4.2 Accented IF doch

The second example involves the conjunct adverb *doch* which is accented and placed in the forefield of the German sentence:

(26) Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit.'The horse was small, his legs were short, and yet he was the fastest runner far and wide.'

The relevant part of the focus-annotated syntactic structure is given in (27) below, where I assume that *doch* modifies semantically the clause in which it is syntactically integrated.

(27)



A construction rule for this use of *doch* may look as in (28).

#### (28) $CR.doch_{CA}.1$

1.Introduce a presupposed speech act discourse referent  $\pi'$  into the discourse universe.

2.Introduce into the condition set of the discourse representation of the sentence the condition  $\pi' : \neg \pi[\overline{F}(\pi)/\overline{F}(\pi')]$ .

The triggering configuration of this rule would be the one in (29).<sup>10</sup>

(29)



In the first step of the DRS construction we get the representation in (30). Now, the presupposition introduced by CA *doch* should be resolved in the context of the first clause  $\pi_1$ , since CA *doch* performs just like the conjunction *doch* a clause connecting function. However,  $\pi_1$  does not provide an antecedent to which  $\pi'$  could be bound. Nevertheless, the intuition is that  $\pi'$ , here that not being the fastest runner, is a natural consequence from  $\pi_1$ , here that the horse is small. In Karagjosova (forthcoming) and Karagjosova (to appear), I present an analysis of CA *doch* in which the presupposition that CA *doch* gives rise to is bound to a default inference of the first conjunct.<sup>11</sup> However, the question of how this idea can be implemented in the present framework is far from trivial and must therefore be postponed for future work.

<sup>&</sup>lt;sup>10</sup>Strictly speaking, we deal here with the host including *doch*, which is syntactically integrated into the host sentence and carries the focus, so that  $\pi$  correspondts to the upper S that is the second part of the coordination.

<sup>&</sup>lt;sup>11</sup>I give two alternative explanations of the origin of this default inference. In Karagjosova (forthcoming), it follows from the semantics of the connector that I assume there. In Karagjosova (to appear), I argue that it is an implicature generated as a result of an interaction between focus-induced contrast and discourse linking.

(30)



#### 4.3 Adding discourse relations

A final point concerns the discourse effect of the various uses of *doch*. The discourse representations above do not contain information with respect to the discourse relations that *doch* marks in the respective contexts. As pointed out in section 3, this information is partly captured in the underspecified *doch*-alternation (13). As already pointed out in section 3, the full specification of the type of contrast expressed by a particular *doch*-use occurs when the additional information-structural and syntactic information is combined with the semantics of *doch* in the process of the semantic construction of the discourse. But the result of this interaction is not obvious from the constructed discourse representations. The representations would be more adequate if they contained explicitly relations like Concession( $\pi_2, \pi'$ ) or Correction( $\pi, \pi'$ ), possibly introduced by means of additional conditions specified in the construction rules for the respective *doch*-variants.

In standard SDRT, connectors like *doch* specify the rhetorical relation Contrast and are treated as anaphoric. For instance, *but* is assumed to presuppose that an antecedent of an appropriate sort exists in the discourse context Asher and Lascarides (2003).<sup>12</sup>

However, *doch*, as well as *but*, can mark not only the SDRT-relation Contrast, but also Correction. This means that we cannot conceive of a connector as hardwired to the introduction of a unique discourse relation.

Further, discourse relations are defined in SDRT independently of the semantics of the connectors which indicate them, since the relations may not be explicitly marked by connectors. However, the relation marked by *doch* cannot always be inferred on the basis of the semantics of the clauses alone. Consider for instance (31), where the

<sup>&</sup>lt;sup>12</sup>This presupposition does not have to do with the semantics of *but*, but with its status as a two place connector.

*doch*-sentence confirms the preceding utterance and corrects a previously held contrary opinion of speaker B that is not present in the discourse but must be accommodated. On the stardard SDRT account, *doch* would introduce a correction relation between utterances A and B, which would be clearly wrong.

(31) A: Karl hat gelogen.'Karl lied.'B: Er hat also DOCH gelogen.'So he lied after all.'

On the account presented here, the semantics of the connector contributes to specifying the relation as well as to finding the correct argument for it. For instance, in (32), which would be the representation of (18) with explicitly represented discourse relation, finding the antecedent of the presupposed clause  $\pi'$  leads also to identifying the second argument of the relation:<sup>13</sup>

(32)



## **5** Conclusions

I presented an exploratory DRT-based account of the adversative connector *doch*, motivated by the consideration that connectors are discourse phenomena that should be treated in a formal theory of discourse. Although I leave many important and intricate details for further elaboration, the presented account demonstrates how the complexity of a phenomenon like discourse connectors may be dealt with within existing DRT-based formalisms.

<sup>&</sup>lt;sup>13</sup>Actually, Concession is not among the inventary of SDRT relations. It is treated as a special case of Contrast. The semantics of Contrast is defined in SDRT in terms of implying that the arguments of the relation are semantically dissimilar (i.e. the constituents are semantically dissimilar), cf. Asher and Lascarides (2003). In the case of Concession, the degree of dissimilarity between the arguments is maximal, i.e.  $p \mid \sim \neg q$ .

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# Exhaustiveness of Hungarian Focus. Experimental Evidence from Hungarian and German

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#### Abstract

Preverbal focus in Hungarian has been argued to be more exhaustive or exhaustive in a distinguished way as compared to what has been generally called prosodic focus in languages like English or German. In virtually all analysis it has been assumed that the reason for this property of Hungarian focus is related to its immediately preverbal syntactic position. This effect has thus been derived compositionally at the syntax-semantics interface as part of the truth conditional content of the respective sentences. In this paper I present new data from a pilot experiment that suggests that exhaustiveness is not part of the truth conditional content of sentences containing preverbal focus in Hungarian. The data also shows, however, that Hungarian focus is indeed somewhat more exhaustive than prosodic focus in German. Hence there is definitely something to say about exhaustiveness in Hungarian. Finally I present a new empirical puzzle emerging from the experimental data.

## **1** Introduction

In the literature about information structure it is widely known and accepted that Hungarian (and probably other languages as well) has a special kind of focus. The observation is this: if a focused expression appears in the immediately preverbal position as in (1) it is interpreted exhaustively, i.e. as if it were in the scope of 'only', while if it appears somewhere else as in (2) this exhaustiveness effect is not available (Szabolcsi, 1981).

- (1) Péter  $[Marit]_F$  szereti. Peter Mary.ACC loves 'Peter loves Mary (and no one else).'
- (2) Péter szereti [Marit]<sub>F</sub>.
  Peter loves Mary.ACC
  'Peter loves Mary (and possibly someone else as well).'

Arndt Riester & Edgar Onea (eds.) Focus at the Syntax-Semantics Interface. Working Papers of the SFB 732, Vol. 3, University of Stuttgart, 2009 Since arguably the immediate preverbal position is a specific focus projection and the focused expression appears in this position by virtue of focus-movement as roughly exemplified in (4), one can view preverbal focus in Hungarian as *structural focus* and may expect a generalization of the kind given in (3).

#### (3) **Generalization about structural focus:**

Structural focus is generally/always/context independently interpreted exhaustively while prosodic focus is not or not always exhaustive.

(4)



Since this generalization may not hold as solidly as one would expect, the somewhat looser notions of *identificational focus* vs. *information focus* have been introduced that capture this intuition but leave languages a bit more freedom in what exactly is coded by these different types of foci and how they are syntactically coded in languages. This way, English *it*-clefts have been argued to be instances of identificational focus while prosodic focus in English is probably thought of as an instance of information focus. This argument can be found most prominently and most influentially in É. Kiss (1998, 267):

Wheres languages with structural focus appear to be uniform in distinguishing between a preposed identificational focus and an in situ information focus, they differ with respect to the actual feature content of their identificational focus. [...] the identificational foci of different languages are specified for the positive value of either or both of the features [ $\pm$  exhaustive] and [ $\pm$ contrastive]. Furthermore, the feature complex associated with the indentificational focus can be strong [...], triggering obligatory focus movement in syntax, or can be optionally strong or weak, allowing focus movement either in syntax or in LF.

In the literature on Hungarian focus, virtually every aspect of the argument sketched above has been criticized. It has been argued, that in fact only preverbal focus is focus in Hungarian while there is no such thing as 'information focus' which would appear post-verbally. It has been argued that identificational focus in Hungarian is indeed exhaustive but it appears preverbally not by virtue of focus movement but because of other specific features of the left periphery of Hungarian; namely a so called exhaustive-identificational projection (Horváth, 2006). It has been argued that identificational focus in Hungarian is indeed exhaustive, but only pragmatically and not semantically, as originally proposed (Wedgwood, 2005). It has been argued that exhaustiveness is rather irrelevant for

the discussion of the Hungarian data: the crucial point is rather that Hungarian focusmovement is driven by stress and not by some specific semantic feature (Szendrői, 2003). It has been argued that the major problem is not to derive exhaustiveness for preverbal focus (which would pragmatically follow anyway) but to understand what is going on with post-verbal focus (Onea, 2007) etc. Nevertheless, the classical view is still the most influential.

In effect, there is some agreement about the fact that Hungarian focus is *special* in some way that is clearly related to exhaustiveness but scholars are divided about the question how one could semantically and syntactically model this special feature of Hungarian focus.

What has not happened yet is a carefull empirical discussion of the data. Instead linguistic introspection or information elicitated from informants is generally used as primary piece of evidence.<sup>1</sup> However, this is not quite as straightforward as it may appear at the first glance. There are two reasons for this that are closely connected to the type of argument used. The way in which it has been argued that Hungarian focus differs from, say, English focus is that some test-sentences are acceptable in Hungarian which are not acceptable in English, or that some sentences are not acceptable in Hungarian whereas they are in English. But at the same time the following must also be considered:

- 1. such acceptability judgements (especially involving pragmatic phenomena) are mostly anything but clear yes/no issues and exhibit a large variance both within and between subjects.
- 2. independently of its alledged exhaustive interpretation, focus quite generally plays a role in discourse. Hence, viewing focus-examples in isolation may be missleading because discourse effects may interact with exhaustiveness effects.

Especially since we are dealing with a phenomenon intensely discussed over the past twenty years and more without any consensus, it is important to have a clear data background, so as to have a better view on what actually needs to be modelled. This paper is not an attempt to settle the data question once and for all but rather presents a first step. As such it is a part of a larger ongoing enterprise of experimental studies, cf. Onea and Beaver (2009) for further developments.

In this paper I will present some experimental data about the exhaustive feature of Hungarian focus. The experiment attempts to measure the degree of exhaustiveness of preverbal focus in Hungarian and compares the results with the results of the very same experiment run in German. The results are as expected to the extent that they confirm that Hungarian preverbal focus is more exhaustive than German prosodic focus. Unfortunately, '*more* exhaustive' does not mean 'exhaustive', since the results clearly show that in Hungarian preverbal focus is significantly less exhaustive than examples in which *only* overtly marks exhaustiveness. Moreover, it turns out that the degree of exhaustiveness is correlated to the presence of verbal prefixes. The results, hence, suggest

<sup>&</sup>lt;sup>1</sup>The only study (to my knowledge) that attempts an empirical discussion of the data is a corpus study in Wedgwood et al. (2006) which presents a number of examples that are not quite in line with the theoretical expectations of former studies. And, indeed, as one looks even at brief sequences of real, natural occurring text in Hungarian, exhaustiveness is not the kind of thing one could extract from these data as a characteristic feature of the focus occurrences.

that more needs to be said about Hungarian focus than has been said before. In particular, a more fine grained analysis is apparently needed that can account for effects like a possible interaction between the presence of verbal prefixes and focus interpretation, as suggested by the experimental data.

The structure of this paper is as follows: In the first section I will present the general exhaustiveness argument and the kinds of tests that have been used to show that Hungarian focus is exhaustive. Nevertheless, I will not enter the details of any particular analysis here. In this chapter I will also point out some shortcomings of these tests. In the second part I will present the experimental design and the results of the experiment that I have conducted and finally I will wrap up and discuss the new questions opened up by the results.

## 2 The exhaustivity argument

Preverbal focus in Hungarian has been argued to be exhaustive, i.e. the focused expression is interpreted as if it would be in the scope of an exhaustification operator roughly paraphrased as *only*. Hence, for (1) it is predicted that the hearer understands that Peter loves Mary and no one else. As mentioned above, the reason for this is that focus in the immediate preverbal position occupies a specific syntactic projection that provides the necessary exhaustiveness feature. Unfortunately, the argument is a bit more complicated. In order to illustrate this complication, let us consider the examples given in (5). These examples are interesting because they show the behavior of focused preverbal quantified noun phrases. We know that not all quantifiers support exhaustification as not all of them can be combined with 'only'. For (5-a) it is seems reasonable to assume that the focused quantifier phrase is interpreted exhaustively, for (5-b) this may make sense in particular contexts, although it is not easy to combine 'many' with 'only' even in contexts in which 'many' is contrasted to 'all'. Finally, exhaustification simply does not make any sense for (5-c).

- (5) a. Péter [kevés lányt]<sub>*F*</sub> szeret. Peter few girl.ACC loves 'Peter loves few girls'.
  - b. Péter [sok lányt]<sub>F</sub> szeret. Peter many girl.ACC loves 'Peter loves many girls'.
  - c. Péter [minden lányt]<sub>F</sub> szeret. Peter every girl.ACC loves 'Peter loves every girl'.

As such this would suggest that preverbal focus cannot be exhaustive after all. But on a closer look it turns out that this observation about exhaustiveness correlates to hard distributional facts about these quantifiers. These distributional contrasts can be observed if the verbal predicate is complex. Verbal predicates in Hungarian can be simple as in

(5) or complex. Complex verbal predicates involve verbal particles used as prefixes or incorporated bare nouns. The particles that can be used as verbal prefixes are generally local prepositions that combined with a verb form a phonological word and give rise to often transparent complex meanings as in ki ('out') + dob ('throw') = kidob ('throw out'). There are two important facts to keep in mind about verbal prefixes in Hungarian:

- 1. Verbal prefixes mostly have an impact on the aspectual properties of verbal predicates in that simple verbs are mostly imperfective while verbs with prefixes are mostly perfective (non-eventive verbs are excepted from this generalization, see Kiefer (2006) for a very detailed overview). This aspectual effect is most clearly available for the prefix *meg* which has no spatial meaning at all and has the sole function of turning verbs perfective (and telic).
- 2. Verbal prefixes may appear post verbally under specific conditions as well. Incorporated bare nouns behave syntactically exactly like verbal prefixes but do not change the aspectual properties of the verbal predicates (cf. Farkas and de Swart (2003) for details and a semantic analysis).

After this short introduction to complex verbs in Hungarian the distributional differences between different focused preverbal quantifier phrases can be captured with the generalization given in (6). Hence, as shown in (7) verbal prefixes appear postverbally with 'few' and preverbally with 'every' while they can appear both pre- and post-verbally with 'many' depending on the appropriate interpretation.

#### (6) Generalization: Verbal prefixes and exhaustiveness

If a preverbally focussed quantifier phrase is interpreted exhaustively and the verbal predicate contains a verbal prefix (or a bare noun) the prefix (or the bare noun) will appear post-verbally. If a preverbally focussed quantifier phrase is not interpreted exhaustively the verbal prefix (or bare noun) remains in its default preverbal position.

- (7) a. Péter [kevés lányt]<sub>*F*</sub> (\***meg**-)csókolt **meg**. Peter few girl.ACC kissed meg 'Peter kissed few girls'.
  - b. Péter [sok lányt]<sub>F</sub> (**meg**-)csókolt (**meg**). Peter many girl.ACC kissed meg 'Peter kissed many girls'.
  - c. Péter [minden lányt]<sub>F</sub> **meg**-csókolt(\***meg**). Peter every girl.ACC meg-kissed 'Peter kissed every girl'.

The generalization in (6) has usually been treated as a test in the literature. The distribution of the verbal prefixes has been taken to show whether the focused expression appears in the focus-position or some other quantifier position. Crucially, the reason why a focused quantifier phrase appears in these positions is different: if it is in the focus position the reason for the movement that results in this overt structure is exhaustiveness whereas in other cases we have a case of quantifier raising which is independent of focus movement, and hence a case of *in situ* focus. When speaking about preverbal focus in Hungarian I will not refer to these cases and simply ignore them for the rest of this paper.

This specific observation about the related distribution of quantifiers and verbal prefixes is the most powerfull argument for the semantic exhaustiveness of preverbal focus in Hungarian, but at a closer look, the argument is not as clear as it may seem. It turns out, for instance, that it is not a trivial task to state the difference between exhaustive and non-exhaustive readings of 'many'. In Onea (2008) I proposed an alternative analysis that moves the focus of attention away from exhaustiveness feature as such and rather concentrates on the discourse function of the focused expressions. The expnalation of the contrast in (7) proposed there is as follows: if 'many girls' is used to answer a wh-question ('How many?') directly, the prefix appears post-verbally, while if the quantifier phrase is an indirect answer to the same question, the prefix appears preverbally. The direct answer could be paraphrased such that 'many' is actually perceived as the answering constituent and with this answer the question is no longer open. An indirect answer could be understood as a hint that there were too many girls Peter kissed for the question to be reasonable. A direct answer to a wh-question is often understood exhaustively, hence, in a way this observation still fits the generalization stated above, although the notion of exhaustiveness must be understood in somewhat looser terms that would need to be made precise by any theory claiming that preverbal focus in Hungarian is exhaustive. A more convenient way would be to leave the notion of exhaustiveness as strong as usually but to assume that it is something Hungarian focus is only associated with pragmatically, crucially in a defeasible way.

But then again, there are some other exhaustiveness arguments to handle. For instance Szabolcsi (1981) argues that the sentence in (8), which is perfectly fine in Hungarian, would be a contradiction and hence infelicitous if the focused element 'Peter' was not interpreted exhaustively. As with the previous one, this argument has also been challenged in the literature.

(8) Nem  $[Péter]_F$  aludt a padlón, hanem Péter és Pál Not Peter slept the floor-on but Peter and Paul 'It wasn't Peter who slept on the floor, but Peter and Paul.'

In Onea (2007) I have argued that under specific conditions such a sentence is also felicitous in languages in which a strict exhaustive focus interpretation has never been claimed: in particular I have claimed that such sentences are acceptable in German exactly if they refer to a singular event in which Peter and Paul are participating together. In these cases exhaustiveness would be coded independently of focus. Such event related features have recently been argued to be responsible for exhaustiveness inferences in Kratzer (2009) as well. Moreover, in Onea (2007) I argue that such sentences are only acceptable in Hungarian under such readings as well, hence (8) means that Peter and Paul are the participants of the same sleeping event. This intuition has been challenged by Anna Szabolcsi (p.c.). This is an important data question, which should be experimentally testet, but this goes beyond the scope of this paper.

While every single argument for semantic exhaustiveness of preverbal focus in Hungarian is controversial in my view, it is generally beyond controversy that Hungarian focus is exhaustive in some way or another. The controversy starts with the question of how this effect should be modelled. Without entering the details of the derivations proposed by different scholars, two possible positions can be distinguished: a) either the exhaustiveness effect is part of the truth conditional content of the respective sentences or b) it is a pragmatic effect. In the first case the exhaustiveness effect must be derived at the level of semantic composition. There are several ways of doing this including an exhaustiveness operator as originally proposed in Szabolcsi (1981) or an operator of exhaustive identification as recently proposed by É.Kiss (this volume). In the second case exhaustiveness does not need to be derived at the level of truth conditional content. However, if the intuition that exhaustiveness is a systematic effect associated with Hungarian focus is correct even a pragmatic account of exhaustiveness may need to derive a property X of sentences containing preverbal foci such that this property can trigger a systematic exhaustiveness effect in most if not all contexts. Such a property would need to be either some discourse property that could be described e.g. in terms of a questionanswer paradigm, some event structure related property as proposed in Onea (2007) and Onea (2008) or an information processing related property of sentence meaning such as being the main predicate and hence the most relevant predication with respect to the conversational tasks, as argued in Wedgwood (2005). Note that the only fully explicit pragmatic account at this point is the latter.

This controversy can be understood in quite different ways but one fairly natural way to see it is that the question at issue is whether exhaustiveness is part of the context dependent or context independent meaning of sentences. Or put in another way, whether the exhaustiveness inference is an entailment of the semantic value of sentences containing preverbal focus or an entailment of the semantic value of sentences containing preverbal focus and some additional contextually given premises and possibly even more general conversational principles.

Another way to understand the issue is to draw the distinction not between context dependent and context independent meanings but rather between different ways of interaction with context. This way of thinking could have two reasons. The first one is that there are reasons to assume that truth conditions are not something that sentences generally have *per se* but rather some kind of contextual enrichment is mostly necessary in order to get actual truth conditions from the semantic value of sentences, e.g. in the sense that a number of implicit variables must be bound by context for the sentence to actually arrive at type *t*. The second one is more specific to exhaustiveness: even in the first case, if exhaustiveness is semantic in nature, exhaustiveness is still context dependent since it is to be understood as quantification over context dependent sets. Crucially, however, in the second case, if exhaustiveness is pragmatic, exhaustiveness is a defeasible, context dependent inference in a way in which the first one is not. Hence, an exhaustive interpretation may be facilitated but not determined by the linguistic form.

Put in more standard terms of truth conditional semantics the theoretical decision problem is this: either the exhaustiveness inference is an entailment (or a presupposition) or it is an implicature. In the next section I will present experimental data supporting the latter view.

## **3** The experimental results

Experimentally testing exhaustiveness involves some difficulties. The main difficulty is that as argued in Grice (1967) according to the principles of rational communication people will say neither more nor less than is necessary for achieving their communicative tasks. This means that the hearer can generally conclude that there is no relevant information that the speaker whitholds and that everything the speaker says is relevant. But then this also means that generally the information will be understood as exhaustive whenever being non-exhaustive would mean that the speaker witholds relevant information. If this is correct, testing any exhaustiveness effect that goes beyond this general tendency must be a nontrivial task, because we expect people to interpret utterances as exhaustive relevant to the task of the conversation anyway. Hence, if a subject hears that Peter has two children he is expected to assume that he has no more and no less than two children regardless of focus.

Moreover, focus plays a role in indicating the communicative task in the sense that it indicates what the question under discussion is (Beaver and Clark, 2008) or, put in less functional terms, intonation is at least sensitive to the communicative task, hence it is expected to interact with exhaustiveness inferences. As such it has been argued byvan Kuppenvelt (1998) that even scalar implicatures only arise if the scalar item is an answer to a question, and to a certain degree experimental evidence for this claim has been presented e.g. in Zondervan (2007). Hence, regardless of any particular theory of focus interpretation some pragmatic tendency to interpret focused expressions as exhaustive is expected simply because a non exhaustive relevant (since potentially an answer to a question) information is less likely to be used in successfull communication.

The task of the pilot experiment I present in this paper is therefore not to show whether there are any exhaustiveness effects associated with preverbal focus in Hungarian but rather to decide whether these effects are truth conditional or not.

#### **3.1** The theoretical background

In the literature it is an open question whether it makes sense to assume that sentences generally have truth conditions. The intuitive argument for assuming that sentences have truth conditions is that people are generally able to decide whether a sentence is true or false in a given situation and that people use language to communicate content, i.e. information, which is most naturally modelled in terms of propositions. The major argument against the assumption that sentences have truth conditions is that the intuitive answer to the question whether a sentence is true or not in a given situation is often context dependent. See Cappelen and Lepore (2005) for a detailed discussion of the controversy.

In this paper I will assume that truth conditions are usefull to determine the linguistic meaning of sentences, in particular I will assume that sentences have at least truth conditional content (if not fully specified truth conditions) and whether or not hearers contradict a sentence given a particular situation which at the same time is also the extra-linguistic context of the utterance can be used as a test to decide whether some particular (alledged) inference that is contradicted by the situation is part of the truth conditional content of a sentence or not.

Put in another way: if people tend to contradict a sentence and in a particular situation without further context, there is reason to doubt that in that particular situation the sentence is true.

Of course, this is not a matter of necessity, since people may contradict certain utterances for quite different reasons. In addition, we may assume that context plays a role in establishing the truth conditions of sentences, in the sense that whatever is missing from the sentence meaning but is needed to get a proposition is given by the context. If so, it may also be the case that the fact that people contradict a sentence merely signals that they construct contexts in which the sentence in not true given the particular situation. But let us assume that context plays only a partial role in establishing the truth conditions of a sentence, i.e. not everything depends on the context. Let us also assume that people do not have a default tendency to construct contexts in which a sentence is not true given a particular situation: i.e. if it does not cost 'too' much they will rather construct contexts in which the sentence is true. For instance assume that the someone is given the sentence in (9) and he knows that Peter actually weights 87 kg. Of course a context could be imagined in which this sentence is true, namely if the topic of discussion is the weight of people on a distant planet slightly smaller than the Earth such that on this planet Peter actually would weight exactly 70 kg. But imagining such a context is not something we can expect from a hearer of (9), because such a context is not a usual one. Hence the hearer would rather contradict (9).

(9) Peter weights 70 kg.

Under these two assumptions, if speakers of a language tend to contradict a sentence given a particular situation, one can conclude that there is some kind of *inherent incompatibility* between the meaning of the sentence and the situation. This kind of inherent incompatibility can be seen as an incompatibility between the truth conditional content of the sentence and the situation.

The same applies to the opposite. If speakers generally tend to accept a sentence given a particular situation, this in itself does not prove that the sentence is truth conditionally compatible with the situation, but it certainly gives us no reason to doubt this. Of course, the reasons not to contradict a sentence may be various, stretching from lack of interest in achieving a common ground to reasons of politeness, but if there is reason to believe that people do contradict false sentences regularly in a certain experimental setup then these considerations may be neglected.

In addition I assume that contradicting an utterance is an extreme measure in communication at least as far as social normative aspects for Hungarian and many other

languages are concerned. There may be a whole array of disagreement or misscontent regarding an utterance for which an overt contradiction may generally not be chosen. Assume for instance that an utterance is missleading or not relevant for the tasks of the communication. In this case the hearer may choose not to contradict the sentence but rather to choose a *yes, but* type of answer, which on the one hand signals his misscontent but on the other hand avoids contradiction. I further assume that overt contradiction (*no*) is reserved for more serious types of misscontent. If there is at least a kernel of truth in these assumptions, one can conclude, that in a 0-context contradiction is more likely to be a signal of falsity while *yes, but* answers generally signal some kind of pragmatic oddity with respect to the constructed context in which the hearer interprets the sentence.

Of course, one may still contradict a true utterance for being pragmatically odd and in fact one may also accept a false utterance, but if these assumptions are correct, I predict at least some statistically relevant correlation between falsity and the tendency to contradict, truthfulness and the tendency to accept and pragmatically missleading nature and *yes but* answers.

For the task at hand, i.e. experimentally testing whether exhaustiveness effects in Hungarian are truth conditional or not, I conclude that whether and how speakers contradict focus utterances given a situation in which the sentence is otherwise true but not exhaustive can be used as a test. If in such a situation speakers of Hungarian choose to systematically contradict sentences with preverbal focus the conclusion seems plausible that exhaustiveness is a truth conditional effect while if this is not the case this can be treated as counter evidence, if the experimental setup can rule out other reasons for not contradicting false utterances.

#### **3.2** The experimental setup

In the pilot experiment that I conducted Hungarian speakers were confronted with pictorial stimuli<sup>2</sup> showing a number of 2-4 persons fulfilling some activity (e.g. running after a ball) or having some property (e.g. holding a banana) such that more than one person is involved as an agent in the activity or has the particular property. In addition, the participants were confronted with audio stimuli<sup>3</sup> containing one spoken sentence in three different conditions:

- In the first condition the subject of the sentence is modified by *csak* ('only') and receives a focus intonation as in (10).
- In the second condition the subject of the sentence receives a focus intonation as in (11) and appears in the immediately preverbal position but there is no ('only').
- In the third condition the subject of the sentence has default intonation as in (12) and does not occupy the immediately preverbal position. If the verb is transitive the object appears post-verbally.

<sup>&</sup>lt;sup>2</sup>The stimuli were kindly painted by Anna Volodina from the University of Frankfurt specially for this experiment, hence the availability of pictorial stimuli was not a criterion in the choice of the stimuli

<sup>&</sup>lt;sup>3</sup>The audio stimuli were recorded in Audacity (http://audacity.sourceforge.net/) by myself as a native speaker of Hungarian and independently checked for the correct intonation by an additional native speaker

In all of these cases the pictorial stimulus shows that the subject of the spoken sentence has the property asserted by the sentence but there is always at least one additional person who has the same property. Hence, sentences in the first condition, which I will refer to as *only*-sentences are false, sentences in the third condition, which I will refer to as *normal* sentences are true but eventually pragmatically misleading and sentences in the second condition which I will refer to as *focus*-sentences are false or missleading depending on whether the exhaustiveness feature is part of the truth conditional content or not.

- (10) Csak PÉTER verte meg Jancsit.
   Only Peter beat.PAST PRF John.ACC
   'Only Peter has beaten up John.'
- (11) PÉTER verte meg Jancsit. Peter beat.PAST PRF John.ACC 'It is Peter who has beaten up John.'
- (12) Péter meg-verte Jancsit. Peter PRF beat.PAST John.ACC 'Peter has beaten up John.'

The task of the participants was to choose one answer to the spoken stimulus from three proposed alternatives. The alternatives asserted the missing information, namely that the other person on the picture also has the asserted property but differed in that the degree of acceptance of the spoken stimulus. The first alternative was a *yes, and* answer as in (13), the second alternative was a *yes, but* answer as in (14) and the last alternative was a *no* answer, i.e. a clear contradiction, as in (15). Note that the alternatives were always presented in the same order. The reason for the decision not to randomize the alternatives was twofold: on the one hand I wanted to avoid the possibility that because of the very high visual similarity of the alternatives subjects would make mistakes especially in the later stages of the experiment because of missreading the alternatives and on the other hand I wanted to avoid any kind bias towards *no*-answers and have a consequent bias towards *yes, and* answers. Hence, if someone has chosen a *no*-answer there must have been a good reason for this. Indeed, more *yes, and* answers were given than expected, but in the overall this eventual bias did not have any effect on the results, since people consequently have chosen no answer for the *only*-sentences.

- (13) Igen, és Misi is meg-verte Jancsit.
   Yes and Misi too PRF beat.PAST John.ACC
   'Yes, and Misi has beaten up John too.'
- (14) Igen, de Misi is meg-verte Jancsit.
   Yes but Misi too PRF beat.PAST John.ACC
   'Yes, but Misi has beaten up John too.'
- (15) Nem, Misi is meg-verte Jancsit.
   No Misi too PRF beat.PAST John.ACC
   'No, Misi has beaten up John too.'

In the experiment 8 lexicalizations for each condition were set up. The experimental software<sup>4</sup> randomly chose 2 stimuli for each condition, that is a total number of 6 stimuli for each participant, as well 6 control sentences and 13 fillers. This total set of 25 stimuli was presented in a random order.

There were 22 participants aged 17-65 whereby 12 of them participated in the experiment under supervision in Budapest and 10 without supervision. There were no noticeable differences between the answers of these groups. 2 supervised and 1 unsupervised participant needed to excluded from the results because of mistakes in the control stimuli, hence in the end the results are based on 19 participants. For this reason the experiment can only be considered a pilot study and is not supposed to give definitive clarity on the topic of investigation.

For purpose of comparison exactly the same experiment has been repeated in German with translated experimental items.<sup>5</sup> The major difference was that in German there is no particular preverbal focus position. Instead focus intonation (A-accent) on the subject was used in analogy to the *focus* sentences in Hungarian, and default intonation without an A-accent on the subjects was used as analogon to the *normal* sentences in Hungarian. Hence, here preverbal focus in Hungarian has been compared to prosodic focus in German. For German the number of participants was even more restricted, in fact there were only 12 undergraduate students, but even with these low numbers a very clear difference to the Hungarian data could be achieved.

#### **3.3** The results

The experimental results clearly show that a) preverbal focus in Hungarian is significantly less likely to be contradicted for not being exhaustive than only sentences and b) the exhaustiveness effect associated with preverbal focus in Hungarian is much clearer than the exhaustiveness effect associated with prosodic focus in German.

The detailed results of the experiment for Hungarian are shown in the following table. The given numbers are absolute numbers. The table clearly shows that there is a preverbal focus effect regarding the tendency of subjects to contradict sentences that are not exhaustive as compared to the normal case where there is no preverbal focus, but this effect is not comparable to the effect of an explicit *only*. If *only* is present nearly all answers were *no*-answers, while in the focus case most answers are *yes but* answers. A statistical analysis shows that these results are significant (provided that the the chi-square test can be applied to such a low number of datapoints): ( $\chi^2(2) = 20.17$  p < 0.01). Note that there is a very clearly observable effect of preverbal focus as well, since most people did not simply accept the sentences but gave *yes but* or *no* answers in the preverbal focus condition, while more than half of the subjects gave a *yes and* answer in the normal case. This effect is not statistically significant because of the low quantity of datapoints but confirms the expectation that preverbal focus has some effect on exhaustiveness.

<sup>&</sup>lt;sup>4</sup>I have used a self programmed experimental software. The source code of the experimental software is available on www.ilg.uni-stuttgart.de/mitarbeiter/onea

<sup>&</sup>lt;sup>5</sup>The audio stimuli for German were kindly recorded by Barbara Schlegel from Radio Regenbogen.
Experiment/condition	only	focus	normal
yes and	2	8	16
yes but	1	15	10
no	27	7	4

In the following table the analogous results for German are presented. The table shows that in German the difference between the *only* and the *focus* conditions is similarly clear as in Hungarian. Significantly less clear is the effect of focus on exhaustiveness. The very few data seem to suggest that in German such an effect is somewhat smaller than in Hungarian.

Experiment/condition	only	focus	normal
yes and	0	7	11
yes but	0	7	4
no	15	1	0

The results are summarized in a somewhat more intuitive way by means of an average number that I obtained by assigning *no*-answers the value 3, *yes but* answers the value 2 and *yes and* answers the numeric value 1. The average number gained this way can be considered a rough exhaustiveness measure, the higher the number, the more exhaustive the sentence seems to be judged by the experiment participants. Here, the difference in exhaustiveness between German and Hungarian focus sentences (where the Hungarian sentence has a preverbal focus) is much clearer, hence it seems that preverbal foci in Hungarian are interpreted more exhaustively than prosodic focus in German. Again, this is only a tendency observable from the few datapoints I have and needs to be proven in a follow up experiment.

Experiment/condition	only	focus	normal
Hungarian no context	2.7	1.97	1.6
German no context	3	1.6	1.27

While these results clearly indicate that Hungarian focus is not semantically exhaustive in the sense that exhaustiveness is not part of the assertion of a Hungarian sentence containing a preverbal focus, these results are compatible with the claim that structural, i.e. preverbal focus in Hungarian is indeed special as claimed by Szabolcsi and É. Kiss in a number of works, in that it is more exhaustive than prosodic focus in other languages like German and (presumably) English. But if the difference is not a semantic difference, the question arises, what could be the reason for the observed difference in exhaustiveness.

In Onea (2008) I have argued that the exhaustiveness feature of Hungarian sentences may be related to aspectual properties associated with verbal predicates although a complete analysis has not been presented. A closer look at the experimental data suggests that the hypothesis assumed there may be indeed on the right track, since for those stimuli in which verbal prefixes are present the exhaustiveness effect seems higher than for those in which no prefixes are available. In the following table the results for the second condition (the sentences containing preverbal focus) are split up depending on the presence [+prefix] or absence [-prefix] of verbal prefixes. Unfortunately the extremely low number of datapoints does not allow any safe generalization. However the fact that the data are in line with that hypothesis is interesting and needs further investigation.

Experiment/condition	preverbal focus [+prefix]	preverbal focus [-prefix]
yes and	5	1
yes but	7	6
no	3	4

## 4 Summary and open issues

In this paper I have presented experimental evidence from a pilot study that preverbal focus in Hungarian is not semantically exhaustive. The experimental results also show that preverbal focus in Hungarian is more exhaustive than prosodic focus in German. Hence, the intuition of a number of scholars working on Hungarian focus that preverbal focus in Hungarian is special i.e. exhaustive in a distinguished way as compared to prosodic foci in some other languages such as German or English is correct.

I interpreted the experimental results such that the exhaustiveness feature of preverbal focus in Hungarian is pragmatic for the simple reason that it is not strong enough to be part of the truth conditional content of the sentence. However the experimental results also show that there may be a structural factor involved as well, since in those cases in which verbal prefixes are present the exhaustiveness level of preverbal focus in Hungarian appears to rise. Whether this effect is really systematically available or whether it is a mere coincidence, remains to be clarified by further research. There are, however, at least two possible explanation for this effect: i) either it is due to the fact that in case the verbal prefix is present the participants more clearly observe that the expression is at a specific structural position due to the inversion in the word order between verb and prefix or ii) the aspectual properties of Hungarian semantically interacts with focus interpretation given rise to a stronger exhaustiveness effect.

In order to distinguish between these hypothesis a number of open questions must be clarified: Does this effect appear with incorporated bare nouns as well, which syntactically behave similar to prefixes but do not have any aspectual role? Does the effect appear with object foci as well? Is the effect constrained to eventive verbs or is it still observable in the case of stative verbs with prefixes as well? Only after these questions are empirically settled can a complete analysis of the focus effects in Hungarian be given.

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# Stress Test for Relative Clauses

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#### Abstract

A brief overview on the semantic differences between restrictive and non-restrictive relative clauses is given. Subsequently differences with regard to information status and focus alternatives are presented. I investigate, in a systematic way, which focus (accent) patterns on relative-clause constructions are (im)possible in which contexts and why this is so. In order to account for the infelicity of certain restrictive relative clause constructions a new proposal is made how to derive the contrastive properties of complex definite descriptions (focus phrases) involving relative clauses. The account presented in this paper gives rise to predictions on intonational phonology and sentence processing.

## **1** On the semantics of relative clauses

Relative clauses are traditionally grouped in two main classes: *restrictive* and *non-restrictive/appositive*.<sup>1</sup> There is broad consensus that the distinction between the two types can informally be described by saying that *restrictive relative clauses* form an integral part of the greater (in)definite description and are necessary to determine the referent of that description whereas *appositive relative clauses* provide extra information about their external head noun, whose referent is determined on independent grounds, compare examples (1a) and (1b).

- a. The young man whom you briefly met at the theatre yesterday is my nephew.b. The moon, which makes a complete orbit around the earth every 27.3 days,
  - has a diameter of 3,474 km.

Despite this intuitive and clear-cut picture, a description in formal semantic terms has for a long time presented a challenge which has to do with the presentiment that an explanation must be given in terms of discourse interaction rather than in a purely static way. I will briefly go through a series of proposals that have been made in the literature and discuss why they fall short or are not entirely convincing. Later on, I will present a context-dependent analysis in terms of information status theory and Alternative Semantics.

<sup>&</sup>lt;sup>1</sup>The two notions will be used interchangeably.

#### **1.1 Properties and propositions**

A not very helpful claim – especially in the "dynamic age" – says that there is a *type* difference between restrictive and appositive relative clauses. According to Rodman (1976); Heim and Kratzer (1998); Holler (2005); Del Gobbo (2007) and others, restrictive relative clauses are property-denoting while appositive relative clauses denote propositions. In Holler (2005), the following arguments in favor of such a distinction are given. We can, for instance, have a parenthesis referring back to the relative clause information in the appositive (2a) but not in the restrictive case (2b).

- (2) a. Luise, die eine Emanze ist was ich sehr bemerkenswert finde Luise who a women's libber is which I very remarkable find ...
  'Luise, who is a women's libber which I think is quite remarkable ...'
  - b. \*Diejenigen Damen, die Emanzen sind was ich sehr Those ladies who women's libbers are which I very bemerkenswert finde ... remarkable find *'\*Those ladies who are women's libbers – which I think is quite remarkable* ...'

Another argument (Lehmann, 1984; Holler, 2005) in favour of a type difference is that appositive relative clauses should come with their own illocution, which is impossible for restrictive relative clauses. The insertion of the performative adverb "hiermit" necessarily turns the otherwise ambiguous sentence (3) into an appositive.

(3) Die Chinesen, denen ich (hiermit) f
ür ihren vorbildlichen Fleiß danke, the Chinese to\_whom I hereby for their exemplary diligence thank sind reich.
 are rich 'The Chinese, whom I hereby would like to thank for their exemplary diligence, are rich.'

Although I share the intuitions illustrated in the above examples I would like to remain less outspoken regarding the question whether this justifies a proposition vs. property distinction. This has to do with the fact that the use of a dynamic framework will blur, to a certain degree, the question whether some phrase is going to be translated as a property or proposition because both restrictive and non-restrictive relative clauses are at some point represented as open formulae (*discourse conditions* in DRT terms) containing a variable with the value of the referent shared by the head noun and some property attributed to it. Therefore, the question is rather how these entities are put to use in the respective cases rather than what their type-theoretic status is.

### **1.2** Treatment of relative clauses in DRT

Discourse representation theory (Kamp and Reyle, 1993) provides a formal distinction – shown in figure 1 – between the two readings of the clause in (4).

(4) The son(,) who attended a boarding school(,) was insufferable.



a. Restrictive b. Appositive

Figure 1: DRT representations of (4)

Kamp & Reyle's proposal amounts to capturing the distinction in terms of different restrictions on the definite determiner's implicitly or explicitly available context set X. Not surprisingly, the content of the relative clause occurs within the restrictor box in the restrictive case (a) while merely functioning as a main level condition in the non-restrictive case (b). Informally, there is precisely one son attending a boarding school in (a), while (b) just says that there is precisely one son.

This captures our intuitions. Questions remain, however, as regards the determination of the context set and, in particular, the role that the relative clauses play in determining the other (excluded) elements of the set. What we would like to possess is a non-circular procedure that tells us how to construe or resolve this set X.

Furthermore, the presuppositions triggered by the definite descriptions do not receive any special treatment (as they do in more contemporary versions of DRT (Kamp, 2001; Kamp et al., to appear)); the interesting procedural character of the restrictive/ appositive distinction is not addressed.

#### **1.3** Presupposition and assertion

A related hypothesis, formulated in Holler (2005, p. 58), following Chierchia and McConnell-Ginet (1990), is that restrictive relative clauses are presuppositional in nature while appositives are not. The situation seems a bit unclear, however, since appositives, too, pass classical presupposition tests, as shown in (6).

- (5) a. The passengers that were saved were happy.
  (b. The passengers that were saved weren't happy.
  (6) a. The passengers, who by the way were saved, were happy.
  - b. The passengers, who by the way were saved, weren't happy.

Both (5) and (6), whether negated or not, give rise to the implication that (the) passengers were saved. Chierchia and McConnell-Ginet (1990, p. 282) argue for an intermediate status of the proposition expressed by the appositive: it is not a presupposition but a "backgrounded" part of the assertion. I do not want to comment on this proposal at this point and, instead, see whether a different concept can help us further in differentiating between the two types of relative clauses: the notion of *information status*, whose relation to presupposition and givenness is investigated in detail in Riester (2008b).

## 2 The information status of relative clause constructions

### 2.1 Two levels of information status

In Riester (2009), I discuss hybrid cases of presuppositions which cannot be grouped as clear instances of either presupposition resolution (binding) or accommodation.

(7) I just met Fred's lawyer. She seems to be really smart.

In (7), for instance, we would like to say that the discourse referent associated with the personal pronoun is anaphorically resolved (bound) to the discourse referent for Fred's lawyer (it is D(ISCOURSE)-GIVEN (in small capitals) according to Riester (2008b, 2009)), while the information that the person in question is female, is NEW<sup>2</sup> (in big capitals, see explanation below) from the perspective of the discourse context.

referent	content	information status
	female	NEW
she		D-GIVEN

Table 1: Information status of the pronoun in (7)

In order to sufficiently describe the information status of relative clauses it is to be expected that we need to employ a similar conceptual separation between a referential and a content level as exemplified above. This is reminicent of the twofold *givenness* definition used in Schwarzschild (1999, p. 151). If an expression is of type *e* it is *given* if and only if it is coreferential. If an expression is of a functional type  $\langle \alpha, \beta \rangle$ , it is *given* iff the context contains an identical or more specific expression (which may or may not be referentially related).

Nevertheless, the approach described here differs substantially from Schwarzschild's account. Instead of employing a simple *givenness* vs. *novelty* distinction, I will use a more fine-grained set of category labels adapted from the literature on *information* 

<sup>&</sup>lt;sup>2</sup>Note that the information probably counts as "accommodated" but that name will be reserved for a special purpose under this account.

*status* (see Riester (2008a) for a survey). Moreover, rather than assuming two different ways of determining a single notion of *givenness*, I will strictly differentiate between a referential and a content level (like in table 1) for which different category labels will be used.<sup>3</sup>

#### 2.1.1 Referential level

I take it that the determination of a discourse referent normally takes place at the level of the NP/DP. This means that assigning a referential information status label only makes sense for maximal projections. In this paper, I distinguish whether such a phrase is coreferential with some aforementioned entity (D-GIVEN), whether it has no discourse antecedent but is hearer-known (ACTIVATE), whether it is construed via BRIDGING or whether neither of the former holds and the addressee has to simply ACCOMMODATE it.

#### 2.1.2 Content level

At the content level, on the other hand, (which will be annotated on *words* in contrast to the phrasal annotations in section 2.1.1), it doesn't make sense to talk about discourse referents<sup>4</sup> (and, relatedly, about an issue such as co-reference). Here, the concepts we have to deal with are word relations like (phonetic) identity, synonymy and hyperonymy. In consequence, the following labels will be used: depending on whether there is a suitable term in the previous discourse, a content word will be labeled SAME for phonetic identity, SYN for synonymy, SUB if the annotated word forms a hyponym or a subordinate (e.g. part) concept, and SUPER in the opposite case if we are dealing with a hypernym or superordinate concept in relation to the respective predecessor. A word which does not possess any appropriate antecedent will receive the label NEW.

#### 2.2 The information status of restrictives

Having defined our vocabulary, we are now able to precisely analyse the information status of the restrictive relative clause construction in a sentence like (8) provided a number of relevant contexts.

(8) The passengers that/who were saved were happy.

Note that it is part of the story that not all of those contexts will actually license an utterance of (8), yet others will impose on it a very distinct intonational pattern. As we still lack some necessary tools, we cannot satisfactorily explain these matters in this section; especially issues having to do with prosody. I would like to ask for the reader's patience until section 3, where the relevant background will be introduced.

<sup>&</sup>lt;sup>3</sup>This section owes much to discussions with Stefan Baumann; in particular the idea of distinguishing two levels of information status. I carry the responsibility for potential flaws and bad representations.

<sup>&</sup>lt;sup>4</sup>At least, if we want that a fundamental distinction between discourse referents and discourse conditions is maintained and an uncontrolled growth of discourse referent types is avoided.

In this section, we shall purely concentrate on analysing the two levels of information status in the written text as sketched above, even for the infelicitous cases. Let us assume that sentence (8) is uttered in any of the following contexts.

- (9) a. A plane had a crash landing.
  - b. A plane with 155 passengers on board had a crash landing.
  - c. A plane with 155 passengers on board had a crash landing. Everyone was rescued.
  - d. A plane with 155 passengers on board had a crash landing. Only a few were rescued.

The information status of sentence (8) in the respective environments (information profile) is given in table 2.

		(9a)	(9b)	(9c)	(9d)
ref	content	information status			
	passengers	SUB	SAME	SAME	SAME
		(plane)			
	saved	NEW	NEW	SYN	SYN
				(rescued)	(rescued)
	the				
passengers		BRIDGING/			
that were		ACCOMM.	D-GIVEN	D-GIVEN	D-GIVEN
saved					

 Table 2: Information profile of the restrictive case

The annotations at the content level are straightforward. The word "passengers" in (8) is a repetition when uttered in the contexts (9b), (9c) or (9d); this is why it receives the label SAME. On the other hand, it is not mentioned in context (9a). Here, it can be construed as being related to the more general concept plane and will be labeled SUB (for "subordinate concept"). As regards the word "saved" it will be interpreted as NEW in the first two contexts and as a synonym of the previously mentioned term "rescued" in (9c) and (9d).

If we now consider the referential level, i.e. the information status of the entire relative clause construction, we may state that each of the contexts (9b), (9c) and (9d) offers a discourse (group) referent that can, in principle, be picked up by the subject phrase of (8) (label D-GIVEN). The antecedents are the groups formed or described, respectively, by the phrases "155 passengers" in (9b), "everybody" in (9c) and "a few" in (9d). In the context of (9a) we have the choice between saying that the passengers stand in a bridging relation to the contextually available plane or that the existence of "passengers that were saved" must be accommodated. (The difference is quite subtle and does not need to be decided at this point.) In any case, the passengers themselves have not been mentioned in (9a).

Taking a first glance at the felicity conditions, the following rough picture arises. Sentence (8) sounds fully acceptable in the contexts (9a), (9b), and probably also (9d). There is something odd about it when uttered in context (9c). It is difficult to have intuitions about these issues, though, because different ways of accenting strongly influence our felicity judgments.

#### 2.3 The information status of non-restrictives

I will now discuss the corresponding non-restrictive case, as given in (10), in the same set of contexts (9a)-(9d). Table 3 shows the respective information profile of the relative clause construction.

		(9a)	(9b)	(9c)	(9d)
ref	content	information status			
	passengers	SUB	SAME	SAME	SAME
		(plane)			
the passengers		BRIDGING	D-GIVEN	D-GIVEN	D-GIVEN
ref	content	information status			
	a a rea d				CLAN
	saved	NEW	NEW	SYN	SYN
	saved	NEW	NEW	SYN (rescued)	SYN (rescued)

(10) The passengers, who were saved, were happy.

Table 3: Information profile of the non-restrictive case

Not surprisingly, the content level information profile is unchanged for both the words "passengers" and "saved" as compared to the restrictive case. However, what strikes us when examining table 3 is that is separated in two parts below one another, each of which possesses its own (referential) information status. This reflects the insight that the information status of the head noun is determined independently of the apposition.

As we can see, the referential information profile of the host DP "the passengers" is (almost) identical to the one of the entire (restrictive) construction that we saw in the previous section. Concerning context (9a), however, we can now wholeheartedly speak of an instance of BRIDGING.

The additional block in table 3 pertains to a separate referential information status assigned to the appositive, which in all contexts is indicated as D-GIVEN; in other words, as co-referential with the head nominal. This deserves some extra comment as it comes with a non-trivial (and potentially questionable) assumption, viz that a non-restrictive relative clause is a referring expression in the first place and, more specifically, that it possesses an individual type referent. This seems at least partly justified if the relative clause can be interpreted as a projection of its relative pronoun, which, in turn, is co-referential with the head noun phrase.

If, on the other hand, we are not justified in saying that the apposition is a referring expression or that it refers to a proposition or eventuality, instead, then it is also not in need of being represented in presuppositional/anaphoric terms and will fall beyond the issues discussed in this paper.

Concerning the felicity conditions of the non-restrictive construction we note that it sounds good in the first two contexts while being inappropriate in the last two. There is not much tolerance for prosodic variation; in particular, the apposition itself needs to be stressed.

## **3** Intonation and focus interpretation

#### **3.1** Remarks on intonational issues

Concerning the prosodic properties of relative clauses, it has been noted in e.g. Lehmann (1984, p. 263), that there is an "intonation break" (prosodic boundary) between the head nominal and the non-restrictive relative clause, while there is one "continuous" intonational contour (presumably, a single intonation phrase) spanning the entire restrictive relative clause construction. A possible interpretation of this is that in the first case the relative clause is excluded from the scope of the determiner while in the second case it is included under it.

Clifton et al. (2002) investigate the attachment preferences for various syntactic constructions (including relative clauses like in (11)) depending on the relative size of the prosodic boundaries at the different possible attachment sites. The options consist in prosodically realizing the positions marked by an  $\uparrow$  without any boundary (0), with an intermediate phrase boundary (ip) or with an intonation-phrase boundary (IP).

(11) I met the daughter  $\uparrow$  of the colonel  $\uparrow$  who was on the balcony.

In an experiment where the early boundary was subject to variation while the late one was always realized as *ip*, interpretation preferences underwent a statistical shift. For the sequence [0 ip], exemplified in (12a), the sentence was for about half of the time interpreted as showing high ("the daughter was on the balcony") and for the other half as low attachment ("the colonel was on the balcony"). For the boundary sequence [IP ip], i.e. with a strong boundary on the initial position as in (12b), there was a significantly higher share of low attachment interpretations.

( ( I met the daughter of the COlonel  $)_{ip}$  ( who was on the (12)a. L\* L-H\* BALcony )<sub>ip</sub> )<sub>IP</sub> H\* L- L% b. ((I met the DAUGHter)<sub>*ip*</sub>)<sub>*IP*</sub> (( of the COlonel)<sub>*ip*</sub> ( who was on the L\* L- H% H\* H\* L-BALcony  $_{ip}$   $_{IP}$ H\* L- L%

While these findings aren't directly related to our general issue, there are nevertheless some useful implications that we can draw from them. Firstly, we may suspect that a strong initial boundary, i.e. the presence of a short initial intonation phrase, goes hand in hand with an increased (though not absolute) need to place stress on the word "daughter". Secondly, although no reference is made to the restrictive vs. non-restrictive distinction in Clifton et al. (2002), it is clear that the sentence can give rise to the four different interpretations shown in table 4.

high attachment, restrictive (HR)	low attachment, restrictive (LR)
the d. that was on the b.	the c. that was on the b.
high attachment, appositive (HA)	low attachment, appositive (LA)
the d., who was on the b.	the c., who was on the b.

Table 4: Different interpretation possibilities of (11)

Taking the somewhat impressionistic account by Lehmann (1984) into consideration, table 4 allows for the following preliminary speculations. If it is true that a restrictive relative clause construction indeed forms a single intonation phrase then a prosodic solution like in (12b) is not compatible with the interpretation HR because the head, consisting of the complex possessive, arguably should not be split in two parts.

If, on the other hand, a non-restrictive relative clause construction requires an intonation break between the head noun and the relative clause then an intonation contour like in (13) – not discussed in Clifton et al. (2002) – would rule out all interpretations except LR: high attachment is ruled out by the intonation break after "daughter" and a non-restrictive interpretation is made impossible by the uninterrupted intonation contour spanning over the lower noun and the relative clause.

The considerations contained in this section certainly have their deficits. Neither is there room for an exhaustive discussion of all possible cases nor is this paper meant to replace empirical psycholinguistic research. However, the issues addressed provide a first insight into the complex prosodic situation we are facing, which is immediately related to the field of focusing discussed in the next section, although the latter has so far typically been kept restricted to the meaning of pitch accents rather than intonation boundaries.

# 3.2 Felicity

In section 2.2, I discussed a number of contexts in which sentence (15) – with varying intonation – might have been uttered. These are repeated in (14).

- (14) a. A plane had a crash landing.
  - b. A plane with 155 passengers on board had a crash landing.
  - c. A plane with 155 passengers on board had a crash landing. Everyone was rescued.
  - d. A plane with 155 passengers on board had a crash landing. Only a few were rescued.

- (15) a. The passengers who were  $SAved_F$  were happy.
  - b. The PASsengers $_F$  who were saved were happy.
  - c. The PASsengers $_F$  who where SAved $_F$  were happy.

The table below is an exhaustive listing of utterances of the variants in (15) in all contexts, along with indications whether the utterance is felicitous ( $\sqrt{}$ ) or not (#) and how it can be interpreted.

con-	(15a) the passengers	(15b) the PASsengers <sub><math>F</math></sub>	(15c) the PASsengers <sub><math>F</math></sub>
text	who were $SAved_F$	who were saved	who were $SAved_F$
(14a)	rest: √, <b>app: #</b>	rest: #, app: #	rest: ?, app: √
(14b)	rest: $$ , app: $$	rest: #, app: #	rest: √, app: √
(14c)	rest: #, app: #	rest: ?, <b>app: #</b>	rest: √, <b>app: #</b>
(14d)	rest: √, <b>app: #</b>	rest: ?, <b>app: #</b>	rest: √, <b>app: #</b>

Table 5: Felicity conditions and interpretations

There is a lot that could be said about table 5. I shall only give explanations for readings which are **not** (#) available. Firstly, I am going to discuss what criteria are responsible for not getting an appositive reading, then the restrictive case will be discussed, in which the issue of *contrastive interpretation* is going to play an important role.

#### 3.2.1 Criteria for not having an appositive reading

The reason why no appositive reading is available in the rows for the contexts (14c) and (14d) is that the relative clause is not informative here and, thus, simply superfluous. No choice of accenting can remedy this.

In cases where the information conveyed is not superfluous there are, on principle, two lines of explanation why an appositive reading can be blocked: a semantic and a prosodic one. It is speculative to say which one is more fundamental. As has been noted long ago, an appositive reading is not available if the relative clause lacks an accent (column under (15b)). We explain this by saying that clauses which are informative have to be marked as such, i.e. with a pitch accent on "saved", following the givenness principle by Selkirk (1996) and Schwarzschild (1999): if an expression is not given (in our terminology: neither SAME, SYN nor SUPER), it must be F-marked (in our case, accented).<sup>5</sup> From a prosodic perspective, the apposition seems to form its own intonation phrase and this is minimally possible if it contains at least one pitch accent.

Finally, a possible explanation why an appositive reading isn't available if (15a) is uttered in context (14a) might run as follows. "The passengers" haven't been mentioned and are, therefore, not D-GIVEN. According to the reversal of the principle stated in the previous paragraph, if an expression is not F-marked, it must be given. Because "the passengers" aren't accented themselves we may conclude that if (15a) cannot be understood appositively then something seems to also block the projection of the Ffeature from the relative clause to "passengers". If we were to argue syntactically, we would say that this is due to the fact that the appositive relative clause is not an *argument* 

<sup>&</sup>lt;sup>5</sup>The same explanation accounts for the observation that there are no foci-less sentences.

of the head nominal in this case and is, therefore, not subject to *horizontal* F-projection, cf. Büring (2006). The other option is to invoke a prosodic explanation according to which it is the mandatory prosodic boundary after the head noun – the hermetic nature of the intonation phrase on the relative clause so to speak – that "locks up" the F-feature and in doing so prevents it from projecting.

#### 3.2.2 Criteria for not having a restrictive reading

Among the combinations of contexts and intonation contours contained in table 5 above, restrictive readings are more frequent than appositive readings. Nevertheless, these, too, have to obey some constraints. Most strikingly, in the contexts (14a) and (14b), the relative clause construction cannot be uttered without an accent on "saved" (column (15b)). As in the appositive case, this can purely be explained in terms of the information status of the word "saved". This word is neither given (SAME/SYN/SUPER) nor F-marked and, thus, infelicitous.

As for contour (15a) in context (14c), however, we need to come up with a different explanation. Unlike in the appositive case, we do not want to say that the relative clause is superfluous, here. On the contrary, it is employed successfully in the task of singling out a particular group of people: "saved passengers". The problem is that the use of the phrase "the passengers that were  $SAved_F$ " is only felicitous if there are at the same time passengers that *weren't* saved and this is what context (14c) explicitly rules out.

It is, furthermore, likely that the prosodic realization (15b) ("the PASsengers that were saved") goes together with contexts (14c) ("everyone was rescued") and (14d) ("a few were rescued"). Such a solution requires the availability of "*non-passengers* that were saved"; an interpretation which is, at least, not in conflict with what has been said or is known so far, so these variants seem possible.<sup>6</sup>

#### **3.3** The determiner and the alternative set

Krifka (2006) raises the issue what happens if a focus-sensitive operator associates with a complex definite description that contains a focus.

(16) John only met the woman who talked to  $BILL_F$ .

Sentence (16) can be felicitously uttered in a situation in which John met one woman – Mary – and Mary talked to Bill and Fred; although a classic Structured Meanings approach (Krifka, 1992, 1993) would predict that this sentence is false here. The theory translates (16) into a formula saying that "Bill" is the only name that fits the position marked by the focus in order for the sentence to express a true statement. However as, in fact, "Fred" fits there equally well, the formula is evaluated as false. This, in turn, means that Structured Meanings Theory has to be enhanced by the notion of *focus phrase* (Drubig, 1994; Krifka, 2006), e.g. the definite noun phrase embedding the focus. The quantification domain of "only" will contain referentially distinct alternatives to this

<sup>&</sup>lt;sup>6</sup>But it is particularly important here not to separate the unstressed relative clause from the head noun by a strong break.

focus phrase while the focus-background structure simply provides the general template for these alternatives.

I argue that the problem described by Krifka is not limited to contexts involving focus-sensitive particles like "only". In fact, it also shows up above in our discussion about the contextual constraints for the felicity of relative-clause constructions. The question is, even in the absence of a focus-sensitive particle: what are the alternatives of a somehow focused definite description?

### **3.4** A previous proposal

Von Heusinger (2007) makes a proposal how to derive the Alternative Semantics of definite noun phrases. He notes that in a situation in which there is one Dutch but several English professors the expression in (17a) can give rise to a questionable alternative set as in (17b), whose second element violates uniqueness.

(17) a. 
$$[[the DUTCH_F professor]]^f$$
  
b.  $= \{[[the Dutch professor]]^o, [[the English professor]]^o, ...\}$ 

The same problem arises in a scenario in which there are three women and two men such that Sue talked to Bill, Mary talked to Fred, and Julia also talked to Fred. The alternative set of the modified noun alone is given in (18). Combining this expression with the determiner, as in (19a), yields the focus-semantic value in (19b), which – if instantiated – is represented as (19c).

(18) 
$$\begin{bmatrix} woman who \ talked \ to \ BILL_F \end{bmatrix}^f \\ = \{\lambda x [woman(x) \land talk\_to(x,y)] \mid y \in D_e \} \\ (19) a. 
$$\begin{bmatrix} the \ woman \ who \ talked \ to \ BILL_F \end{bmatrix}^f \\ b. = \{ \iota x [woman(x) \land talk\_to(x,y)] \mid y \in D_e \} \\ c. = \{ \iota x [woman(x) \land talk\_to(x,bill)], \ \iota x [woman(x) \land talk\_to(x,fred)] \} \\ \end{cases}$$$$

Again, there is reason to feel uneasy about the second element in the set, which seems to breach the uniqueness conditions in the given situation – speaking of "*the* woman who talked to Fred" makes no sense. Von Heusinger's attempt to solve the problem is to assign the definite article a special alternative semantic value, generalized union  $(\cup)$ , which when combined with the focus semantic value in (18) yields the following derivation in (20).

(20) a. 
$$[[the woman who talked to BILL_F]]^f$$
  
b.  $= \bigcup \{\lambda x[woman(x) \land talk\_to(x,y)] \mid y \in D_e\}$   
c.  $= \{d \mid d \in P \text{ for some } P \in [[woman who talked to BILL_F]]^f\}$   
d.  $= \{d \mid woman(d) \land talk\_to(d,y); y \in D_e\}$   
e.  $= \{d \mid woman(d) \land \exists y.talk\_to(d,y)\}$ 

Now, the alternative set consists of all women that were present, which is intuitively the right result. However, assigning such an idiosyncratic alternative value to the definite article is a strong deviation from standard Alternative Semantics, which is not entirely

unproblematic (compare von Heusinger (2007, sect. 4) for a discussion and other potential solutions).

According to Rooth (1992), the story about focus is not limited to the creation of a focus semantic value; rather, these sets additionally need to undergo some contextual interaction called *focus interpretation*. An operator ( $\sim$ ) is attached to a focus-containing expression. The job of this operator is to check whether the context provides at least one contrastive element to the expression in its scope which instantiates the "template" designated by the focus alternative value. It is necessary at this point to warn the reader that "context" has to be understood here in a broader sense than just the discourse. While it may be the case on some occasions that the desired contrastive element can indeed be found in the previous discourse there are also plenty of cases in which such an overt item is lacking from the discourse and, yet, listeners are often able to identify it thanks to their lexical or world knowledge. The set made up from the ordinary meaning of the expression plus its contextually identified alternatives is a subset of the original focus semantic value.

In order to make it clear what I am talking about I propose to call the orginal focus semantic value *the logical alternative set* and the subset identified via focus interpretation *the context-dependent alternative set*. Such a distinction, originally present in Rooth (1992), is not explicitly addressed in von Heusinger (2007).

#### 3.5 Revision

In the remaining space of this paper, I would like to propose a different solution concerning the determination of the context-dependent alternative set of definite NPs which may be put to use in various discourse processes, e.g. identifying the quantification domain for a particle like "only" or testing the felicity conditions of relative clauses.

What if the definite determiner, as a functional category, does not participate in the formation of a focus semantic values at all but is simply an indicator of the position at which the focus interpretation operator attaches? The (logical) alternative value of the definite NP "the woman who talked to  $\text{BILL}_F$ " (= X) would thus simply amount to the set given in (21).<sup>7</sup>

(21) 
$$[X]^{f} = \{\lambda x[woman(x) \land talk\_to(x,y)] \mid y \in D_{e}\}$$

A DRT representation of Rooth's *focus interpretation operator*  $\sim$ , is given in figure 2. The box represents an unresolved presupposition (indicated by  $\partial^8$ ) with the instruction to identify a contextual alternative *x* and a set *C*, containing *x* as well as the ordinary meaning  $[[X]]^o$ .

The use of this operator is not yet an answer to the problems raised by Krifka and von Heusinger. In particular, the logical alternative set in (21) has a different type

<sup>&</sup>lt;sup>7</sup>Eventually, it will be necessary to recast this account in an intensional format. Such a move is propagated e.g. in Beaver and Clark (2008, ch. 4). As we are dealing with issues like anaphora, however, this is a non-trivial enterprise which cannot be dealt with in the scope of this paper. Questions arise whether context sets are intensional like focus semantic values are. Possible worlds, on the other hand, can differ with regard to what counts as an alternative in them.

<sup>&</sup>lt;sup>8</sup>Beaver (1992) and subsequent work

$$\partial: \boxed{ \begin{bmatrix} X \end{bmatrix}^o \in C \quad C \subseteq \begin{bmatrix} X \end{bmatrix}^f \\ C(z) \quad z \neq \begin{bmatrix} X \end{bmatrix}^o$$

Figure 2: Presuppositional representation of  $\sim$ 

than what we would like C to be: a set of individuals. Other than postulating a special alternative meaning for the definite article, I propose to integrate von Heusinger's union operator in the definition of  $\sim$ , defined in figure 3.

$$\partial : \boxed{ \begin{bmatrix} \underline{C} \ \underline{z} \\ \llbracket X \rrbracket^o \in C & C \subseteq \cup \llbracket X \rrbracket^f \\ C(z) & z \neq \llbracket X \rrbracket^o \end{bmatrix}^f}$$

Figure 3: Presuppositional representation of  $\sim^{1}$ 

The advantage of this proposal is that the burden of identifying the right context domain is shifted to an operator which is presuppositional already; no unusual focus semantic values have to be assumed. The disadvantage is that we now possess a second focus interpretation operator ( $\sim^1$ ), for referential expressions. But this might come as not so surprising since we learnt from section 2 that there is also reason for assuming two types of *information status* for individual and functional categories, respectively.

The  $\sim^1$  presupposition will be evaluated against the context described at the beginning of section 3.4 (see figure 4) and will lead to the desired result in figure 5.

$$u v w x y$$

$$Sue(u) Mary(v) Julia(w)$$

$$Bill(x) Fred(y)$$

$$talk\_to(u,x) talk\_to(v,y) talk\_to(w,y)$$

$$\partial : \begin{bmatrix} \underline{C} \ \underline{z} \\ [[X]]^o \in C \quad C \subseteq \cup [[X]]^f \\ C(z) \quad z \neq [[X]]^o \end{bmatrix}$$

Figure 4: Context of evaluation and referential focus presupposition trggered by  $\sim^{1}$ 

#### **3.6 Explaining infelicity**

Recall what led us to consider the combination of definiteness and focusing in the first place: to account for the felicity conditions of the restrictive relative clause in (22). Why is this sequence infelicitous? The preliminary discourse representation of it (ignoring the assertional contribution of the last sentence) is given in figure 6.



Figure 5: Contrast presupposition resolved

(22) A plane with 155 passengers on board had a crash landing. Everyone was rescued.  $\#\sim^{\iota}$ [The passengers that were SAved] were happy.



Figure 6: Incoherent discourse, unresolvable  $\sim^1$  presupposition

On principle, the DRS in figure 6 is well-formed and expresses that every passenger of the the group was rescued and is happy. But now, the focus presupposition goes wrong. The logical alternative set  $[X]^f$  of the focus phrase is (23a). Applying generalized union yields (23b) and *C* must be a subset of this.

(23) a. 
$$\llbracket X \rrbracket^f = \{ \lambda X [ passengers(X) \land P(X) ] \mid P \in D_{\langle e, t \rangle} \}$$
  
b.  $\cup \llbracket X \rrbracket^f = \{ A \mid passengers(A) \land \exists P.P(A) \}$ 

We fail to identify a group U, different from  $[X]^o$  and with the property that their members were not saved. This is why the presupposition cannot be resolved, the discourse stays incoherent and the restrictive relative clause construction cannot be successfully uttered in this context.

## 4 Conclusions

### 4.1 Summary and afterthoughts

In this paper, I have presented a comprehensive treatment of the information structural properties of relative clauses, both with regard to information status and focus alternatives. For a number of exemplary contexts and different intonational variants, I investigated and explained which combinations are possible or impossible and why this is the case. Furthermore, I sketched a solution to the problem of determining the focus alternatives of complex definite descriptions (focus phrases). Relative clauses are one type of these. In order to identify the focus alternatives and to explain the infelicity of certain examples, I combined von Heusinger's proposal using set union with Rooth's focus interpretation operator  $\sim$ .

Under my account, the definite article does not give rise to special alternative meanings but instead indicates the position at which a variant of the focus interpretation operator is attached. This might explain, among other things, why *non-restrictive* relative clauses (other than restrictive ones) do not participate in the determination of the contrastive properties of the whole construction: they are outside the scope of the determiner and the focus interpretation operator cannot see them.

In future work, the proposal has to be validated further and re-cast in an intensional framework.

#### 4.2 **Predictions on intonation**

Apart from the semantic and information structural treatment of relative clause constructions this paper makes a number of testable predictions with regard to intonational phonology and sentence processing. Table 5 in section 3.2 not only gives an exhaustive list of context and accenting combinations but is also meant to inspire production or perception experiments. For instance, if the head noun, and along with it its information status, is varied (e.g. "the man" (unmentioned), "the man" (D-GIVEN), "the moon" (unmentioned but identifiable by the hearer (ACTIVATE)), this is very likely to influence the interpretation of a subsequent relative clause. Since "the moon" is already fully identified, further information can only be understood as an apposition, while "the man" in the unmentioned case is in need of further specification. From the story told in this paper, it should be much clearer what accenting differences are to be expected. Finally, the table gives an overview which context-intonation pairs are compatible with both types of relative clauses. In such cases we may expect intonation boundaries to play a decisive role in disambiguation.

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# Focus, Sensitivity, and the Currency of the Question

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#### Abstract

According to Beaver and Clark (2008), a closed class of items, primarily particles like *even* or *only*, are systematically sensitive to focus, encoding a dependency on the Current Question (the CQ). This theory appears to give wrong predictions for exclusive particles like *only* in some cases where intuitively, what the particle associates with is not the (only) constituent in focus, – something else can be in focus instead or as well, even it itself. I conclude that while both focus itself and exclusive particles always address a Question, they do not always address the same.

### **1** Introduction

Beaver and Clark (2008) argue that many items that have been labelled focus-sensitive do not have a lexically-encoded, conventionalised dependency on focus (some, such as negation, have a "quasi" association with focus, some, such as quantificational adverbs, have a "free" association with focus), but that some – particularly exclusive and inclusive particles – do. This dependency is modelled as a dependency on the **Current Question** (the CQ), the (explicit or implicit) question answered by the clause containing the focus-sensitive item. Beaver and Clark adopt Rooth's (1992) theory of focus interpretation and Roberts' (1998) model of discourse structure: Focus presupposes a set of propositions based on **alternatives**, and the Current Question serves to resolve that presupposition. Thus focus and focus-sensitive particle work in tandem because they are both anaphoric on and grammatically constrained to address the CQ.

Beaver and Clark (henceforth: BC) pay special attention to exclusives like *only*, describing their meaning as consisting of three components:

Meaning of exclusives (BC: 251)

**Discourse function**: To make a comment on the CQ, a comment which weakens a salient or natural expectation.

To achieve this function, the prejacent must be weaker than the expected answer to the CQ on a salient scale.

**Presupposition**: The strongest true alternatives in the CQ are *at least* as strong as the prejacent.

**Descriptive Content**: The strongest true alternatives in the CQ are *at most* as strong as the prejacent.

Note that the three components are all formulated with sole reference to the CQ, without mentioning focus. Formally – a bit reformulated for perspicuity – the latter two can be defined as follows (the denominator is the presupposition).

#### The semantics of only according to BC (260ff.)

$$[[only]]_{\nu} = \lambda \pi \frac{\forall p \in CQ_{\sigma} \ p_{\nu} \supset \pi \ge_{\sigma} p}{\forall p \in CQ_{\sigma} \ \pi \le_{\sigma} p}$$

The numerator, encoding the assertion, says that any true member of the CQ (relative to the information state  $\sigma$ ) is at most as strong as the prejacent,  $\pi$ . The strength relation  $\geq_{\sigma}$  can be a more "interesting" ordering than entailment; that depends on  $\sigma$ . The denominator, representing the presupposition, says that any member of CQ<sub> $\sigma$ </sub> is weakly stronger than  $\pi$ . In conjunction with the Current Question Rule, stating that CQ contains at least one true proposition, this means that there is at least one true CQ member at least as strong as  $\pi$ . Let us look at a simple example to see how this theory works.

(1) – What is Lucia eating?– She's only eating PASta.

Consider focus first: the accent on the object tells us that the object or the VP is in focus. Let us say that just the object is in focus; then to verify the focus presupposition, the CQ should be a set of propositions  $\phi$  such that there is an alternative  $\alpha$  to pasta such that  $\phi$  is the proposition that Lucia is eating  $\alpha$ ; such an alternative might be meat, salad, meat and pasta, meat and salad, pasta and salad, meat and pasta and salad; – and the CQ is such a set of propositions if, as assumed by BC (though the second assumption is only made implicitly),

- 1. the meaning of a *wh* question is the set of propositions expressed by the sentences resulting from replacing the *wh* term by a relevant alternative,
- 2. the CQ for a sentence used as an answer is the meaning of the question.

Thus in (1), the **Focus Principle** (BC: 37) is satisfied: the set of alternatives evoked by the answer is a superset of the meaning of the question, the CQ.

Next, consider *only*. The presupposition of the answer in (1) is that the strongest true alternatives in the CQ are at least as strong as [[ Lucia is eating pasta ]]. Strength is not necessarily logical strength, but let us here assume that it is; then the sentence presupposes that Lucia is eating pasta, – or meat and pasta, or salad and pasta, or all three: she is eating meat and pasta and salad. The descriptive content is that the strongest true alternatives in the CQ are at most as strong as the proposition that she is eating pasta; that is, the sentence entails that she is not eating meat and pasta, she is not eating pasta and salad, nor is she eating meat and pasta and salad – and in presupposing that those stronger alternatives were open but asserting that they are not true, the sentence fulfills its discourse function of weakening expectations.

So far, so good: we see how one and the same CQ can serve its purpose both in relation to focus and in relation to *only*. Ex- and inclusives seem focus-sensitive, but the truth, according to BC, is that focus and particle are on beat because they are both sensitive to the same contextual attribute – the CQ.

This may well be the "normal" case. However, there are also instances where focus and *only* are **not** on the same beat; where a CQ may serve its purpose with respect to one but not with respect to the other.

### **2** One Focus, $\neq$ the Associate

Various types of evidence cast doubt on the hypothesis that exclusives always depend on the CQ in the same way as focus, or depend on the same Question (I use the term "Question" to denote a contextually given set of propositions). In this section, I consider one such type of evidence: there is exactly one focus, but that is not what the exclusive associates with. In the first of two cases, a Question does not seem relevant for the exclusive; in the second, the exclusive seems to relate to a less immediate Question.

### 2.1 CQ only goes for Focus

This case is related to the examples given by Prince (1978) and Delin (1992) to show that *it* cleft constructions do not always have the distribution between old and new information that one might expect. Suppose the proposition that Lucia is eating pasta is in the Common Ground, so that the presupposition of the question in (2) is verified. Then the answer in (2) is felicitous as far as focus is concerned, with, as marked by the indicated accent, focus on *can afford*.

(2) – Why is Lucia eating pasta?– She can only afFORD pasta.

But intuitively, what the particle associates with is not that constituent but, as in (1), the object pasta - (2) entails that Lucia cannot afford pasta and salad, or meat, or meat and pasta, or meat, pasta, and salad; not, say, that she does not like pasta (only that the reason she is eating pasta is not that she likes it). Yet this constituent is evidently out of focus. We seem to have a situation where *only* does not associate with focus but with something in the background.

Note that this is not an instance of the "second-occurrence focus" phenomenon, where – in the strict sense of this term, i.e., as it was used by Partee (1999: 215) – a focus sensitive operator and its associate are both repeated and the latter appears not to be prosodically prominent in its second occurrence (BC: 119); Beaver et al. (2007) and, differently, Féry and Ishihara (2005) show that these occurrences are perceptibly prosodically marked after all. The object in the answer of (2), however, is a case of what Partee (1999: 216) called "deaccented focus", where a competition "between contrastive focus and focalizer-associated focus" is resolved by omitting "any marking of focus on the element ... associated with the focalizer".

Still, one might contend that the object is not fully deaccented there. In this connection, it is useful to look at (or rather, listen to) a language like Norwegian, where neutralisation of the "second tone" in a 2-syllable word is considered a sure sign of deaccentuation. Consider (3):

(3)	– Hvorfor gir du enhjørningen din mose?	-
	– why give you unicorn-DEF your moss	_
	Fordi den bare TÅLer mose.	
	because it only tolerates moss	
	' – Why do you feed your unicorn moss? – Because it can only EAT mos	s.'

The word *mose* has the second tone, H\*L-H, but in the answer in (3) it can be reduced to L-H, as could a first-tone word in the same context.

Examples following the same pattern as (2) or (3) are easily multiplied; cf. (4):

(4) – Why are there so many tall students at Duke University?
 – They only offer SCHOLarships to tall students.

These are all interrogative contexts, where the sentence showing a discrepancy between 'the focus' and 'what the exclusive associates with' answers a question, and the question naturally arises what constitutes the Current Question here. The first assumption is that it is, again, the meaning of the explicit question. The meaning of a *why* question is more difficult to specify than that of a term question, but we can try. Considering (2), we may constrain it to be

the set of propositions p such that there is a relevant relation  $\mathcal{R}$  such that  $p = [[Lucia is eating pasta because Lucia <math>\mathcal{R}$  pasta ]]

and if the answer is elliptical for "Lucia is eating pasta because she can only afFORD pasta", the Focus Principle is satisfied: the focus semantic value of the sentence under consideration is a superset of the CQ. That CQ, however, will not do for *only*: the content is definitely not that the strongest true alternative in the set of  $p = [[Lucia is eating pasta because she <math>\mathcal{R}$  pasta ]] for some relevant  $\mathcal{R}$  is [[Lucia is eating pasta because Lucia can afford pasta <math>]]. The reason is obvious: the alternatives relevant for *only* are not alternatives to *can afford* but alternatives to, as earlier, *pasta*.

We may approach the CQ from another angle, abandoning assumption 2 from Section 1 to say that the CQ can be implicit even in the presence of a question:

The CQ for a sentence used as an answer is not necessarily the meaning of the question.

Bear in mind that the CQ is simply a set of propositions, and in a case like (2) this can well be the set containing just these two: that Lucia can afford pasta and that she can afford and is eating pasta. Then if the answer is not taken as elliptical, the Focus Principle is again satisfied – the focus semantic value of the answer, the set of  $p = [[Lucia \mathcal{R} pasta ]]$  for some  $\mathcal{R}$  is a superset of  $\{[[Lucia \mathcal{R} pasta ]]\}$  for  $\mathcal{R} = can afford$ 

or *can afford and is eating*. But again, the contribution of *only* to the truth conditions is misrepresented if it is computed on the basis of this simple CQ: the content is predicted to be that [[Lucia can afford and is eating pasta]] is either (i) false or (ii) no stronger than [[Lucia can afford pasta]]; since the latter is clearly not the case and it is already a fact that Lucia is eating pasta, we are left with the implication that Lucia cannot afford pasta, conflicting with the prejacent.

In fact, the theory predicts that to derive the correct truth conditions, the CQ must be a set of propositions p = [[Lucia can afford  $\alpha ]]$  for a relevant alternative  $\alpha$ . But if we were to interpolate such a Question in (2), the Focus Principle could not be satisfied with respect to that Question; the bit of information expressed by *afford* is not given but new in the discourse, and focus respects this.

At this point, it may be appropriate to ask what informs us of the intuitively correct truth conditions in a case like (2), (3), or (4) – how do we know that the exclusive-relevant alternatives are alternatives to *pasta*, *mose*, and *tall*, even though these words are discourse-old? We need a term for these expressions, and we could follow König (1991) and talk about the focus of the focus particle, but since the notion of focus is at issue, it is better to choose the neutral term 'the associate' (of the exclusive particle). Note that to say that the associate in cases like (2), (3), or (4) is, if not the focus of the current utterance, the focus of an utterance one or two turns or sentences back in the discourse comes close to vacuity: any discourse-old item was once discourse-new.

Evidently, all there is to go on to determine what *only* associates with in (2)–(4) is plausibility: it would be highly implausible to construe the answer in (4) as saying that [[ they offer scholarships to tall students ]] is as strong a proposition as any true proposition [[ they  $\mathcal{R}$  tall students ]] for some relevant relation  $\mathcal{R}$ . It is much more plausible to construe it as saying that that proposition is as strong as any true proposition [[ they offer scholarships to  $\mathcal{P}$  students ]] for some property  $\mathcal{P}$ ; the implication that they don't offer scholarships to short students answers the question, stating why there are so many tall students there.

### 2.2 CQ 1, CQ2

Even if in these cases, there do not seem to be any (discourse or information) structural correlates to go by when determining the associate, in others, it does look as if a suitable set of alternative propositions coincides with a Question, though not the Current Question if this is what focus is invariably sensitive to. Considering (5), the question is roughly equivalent to a Question 'Does he speak a language I know?' or 'Which language(s) does he speak?' – and this is a CQ for the exclusive in accordance with BC's definition and everybody's intuition.

- (5) Will I need an interpreter?– Probably. If he is Russian he is likely to only SPEAK Russian.
- (6) His company sells Windows PCs, but that doesn't mean he only USEs Windows.
   So you really think the people who work at KFC only eat CHICKen from KFC? (web example; accents added)

(7) Insisting on one food does not necessarily mean he only LIKES that food. (web example; accents added)

Similarly, the topic of the posting that (6) is excerpted from is that Michael Dell uses Linux, and that of the posting that (7) is excerpted from is whether the child will ever again want to eat anything else than crackers. It is easy to extract from this a set of propositions coming from the prejacent by replacing the associate by an alternative, vindicating BC's analysis in terms of the CQ. However, this is not the CQ that (intonational, free) focus is sensitive to. What focus is sensitive to is a more immediate, overlying Question, such as, for (6),

{ [[ Michael Dell sells Windows ]], [[ Michael Dell uses Windows ]],
[] Michael Dell sells and uses Windows ]] }

By contrast, the CQ relevant for *only* is e.g.

[ [ Dell uses Windows ]],
[ Dell uses Mac and Windows ]],
[ Dell uses Linux and Windows ]],
[ Dell uses Mac and Linux and Windows ]] }

We can now spell out the presupposition and the content of *only* in this case:

Presupposition: One of these is true:

[[ Dell uses Windows ]],

[[ Dell uses Mac and Windows ]], [[ Dell uses Linux and Windows ]],

[ Dell uses Mac and Linux and Windows ]]

**Descriptive Content**: None of these is true:

[[ Dell uses Mac and Windows ]], [[ Dell uses Linux and Windows ]],

[[ Dell uses Mac and Linux and Windows ]]

Because presupposition and content jointly imply that [[ Dell uses Windows ]] is true, they also imply that e.g. [[ Dell uses Linux ]] is not, since then [[ Dell uses Linux and Windows ]] would be true. (The scale is here based on entailment.) This is what the *only* sentence should mean; as it is embedded under negation, there is no conflict with the given piece of information that Dell uses Linux.

Thus the meaning of the exclusive is successfully computed on the basis of one Question while the Focus Principle is satisfied with respect to another Question. Yet BC (pp. 35ff.), following Roberts (1998), assume a unique Current Question:

"A question that is ... accepted by the interlocutors as the most immediate goal of the discourse becomes the *Current Question* ...,", "A point in a discourse may be characterized in terms of a sequence of ... Questions, of which the most recent is the Current Question."

Now the most recent Question and maybe the most immediate goal of the discourse at the point where *only* occurs in (6) is not the Question relevant for *only* but the Question relevant for focus, the Question based on alternatives to *uses*; the Question based on alternatives to *Windows* is a little less recent. This seems to imply:

Focus relates to the most current Question;

the word *only* relates to the most current Question or to the second most current Question.

In this way, the view that exclusives and other particles are discourse sensitive, although not quite in the same way as focus, would be maintained.

But the cases (2)–(4) above, where a set of propositions based on alternatives to the particle's associate is difficult to identify as a Question, remain problematic. In the next section, we will look at another class of problematic facts.

### **3** Focus $\times$ **2**, one = the Associate

In the last section, we looked at cases where there is one, relatively narrow focus in the relevant clause and this focus, contrary to BC's theory, does not coincide with the associate of the exclusive particle. But there are also cases where there are two or more foci within the confines of one clause and an exclusive particle can in principle associate with either one. Consider (8) and (9).

- (8) Lois LOVES SUPerman but she only LIKES CLARK.
- (9) Lois LIKES CLARK but she only LOVES SUPerman.

It would seem that in such cases, the CQ corresponds to a double wh question and that BC's theory predicts that the exclusive associates with both foci, that is, that the excluded propositions are based on alternatives to the pair in focus. This, however, is counterintuitive. A reasonable guess for the Current Question at the point in a discourse where (8) or (9) is uttered is the meaning of (10):

(10) What is Lois' emotional attitude towards which of the two of Clark and Superman?

If for simplicity we assume that there are only two relevant emotional attitudes and that one, *love*, entails the other, *like*, the CQ will be the following:

{ [[ Lois likes Clark ]], [[ Lois loves Clark ]], [[ Lois likes Superman ]], [[ Lois loves Superman ]], [[ Lois likes Clark and Superman ]], [[ Lois loves Clark and Superman ]] }

Consider now the second half of (8): the presupposition is that Lois likes Clark or Lois loves Clark or Lois likes Clark and Superman or Lois loves Clark and Superman, and the descriptive content is that only the first of these is true. So the prejacent follows: Lois does like Clark. But it also follows that she does not like Superman (from the entailment that she does not like Clark and Superman and the implication that she likes Clark). This contradicts the first half of (8). (Our assumption that *love* entails *like* is not essential for the contradiction to arise; the first half could equally well say that Lois likes and loves

Superman.) The problem is that *only* is construed as expressing not just that liking is all Lois feels for Clark but also that she likes noone but him.

The source of this problem is that the two foci in the second half of (8) are treated alike, or to put it differently, that we assume a Current Question with two slots for alternatives. Intuitively, the focus on (*Superman* and) *Clark* in (8) is not a rheme focus but a theme focus (and in (9) it is the other way around, the focus on (*likes* and) *loves* is a theme focus while the focus on (*Clark* and) *Superman* is a rheme focus). Steedman (2007), for instance, would say that the accent on *Clark* in (8) and on *loves* in (9) is not the rheme focus accent H\* but the theme focus accent L+H\* (or even L+H\*L-H). We might conclude that *only* is sensitive to rheme focus only, not to theme focus. Now for one thing, this seems an overgeneralisation in the face of data like (11) or (12), where it can be argued that (one) *only* associates with a theme focus.

- (11) Most countries have both loans and grants. Only Iceland has only loans.
- (12) Only Iceland has massive glaciers, active volcanoes, gorgeous geysirs, and magnificent waterfalls.

Besides, because the sensitivity to focus is in BC's theory mediated through the CQ, to make use of the conclusion that *only* is sensitive to rheme focus only, we must ensure that the relevant CQ is not neutral towards theme and rheme, more specifically, that the members of the CQ relevant for *only* in (8) are not based on alternatives to both *likes* and *Clark* symmetrically. In particular, they should not include the proposition that Lois likes Clark and Superman – recall that this proposition was responsible for the counterintuitive result above.

There are at least two ways to achieve this. One is to say that there is a special CQ for the second half of (8), more constrained than the CQ for the first half (which may be the meaning of (10)). As soon as the first half has been uttered, the CQ is revised to the meaning of (13):

(13) Well, what about Clark? What is her emotional attitude towards him?

That is, it reduces to this small set:  $\{ [ Lois likes Clark ] , [ Lois loves Clark ] \}$ . This yields the right result for the exclusive. However, there is a cost to this solution: first, it predicts that theme focus does not respect the Focus Principle. Second, it is a mere accident that the exclusive occurs in the second sentence; if it were to occur in the first, there would be no motivation for revising the Question whose members are based on alternatives to both *likes* and *Clark*.

Alternatively, we can assume that the CQ for (8) is the meaning of a question slightly different from (10), namely, (14); and taking our cue from Krifka (2001), we can analyse the 'pair-list' reading of (14) as a conjoined question, (15):

- (14) What is Lois' emotional attitude towards Clark and Superman?
- (15) What is Lois' emotional attitude towards Clark? And, what is her emotional attitude towards Superman?

The meaning of (15) is arguably more restricted than the meaning of (10); the union of the two sets of propositions denoted by the two conjoined questions is

{ [[ Lois likes Clark ]], [[ Lois (likes and) loves Clark ]],
[[ Lois likes Superman ]], [[ Lois (likes and) loves Superman ]] }

Crucially, this set is not based on alternatives to Clark or to Superman; rather, the substitution of one for the other results from unifying the Q pertaining to one with the Q pertaining to the other. Therefore, the proposition [[ Lois likes Clark and Superman ]] does not enter into the CQ. Theme and rheme are not treated alike after all. This yields the right result for focus and for *only*.<sup>1</sup>

So the case of two foci in the clause does not provide conclusive evidence that it is wrong to say that *only* depends on the CQ in the way described by BC; if we are careful about how to construe the CQ, in particular, assuming a 'list' Question for a theme focus, this case ceases to present a problem.

### 4 Focus $\times$ 2: one = *only*

Sometimes, *only* itself appears to be in focus, not just phonologically, but also pragmatically, in the sense that a focus semantic value computed on the basis of that focus is a superset of a set of propositions to be found in the context. Consider first (16).

(16) I expected to miss both my parents, but as it turned out, I ONly miss my DAD.

Intuitively, *only* in the second sentence contrasts with *both* in the first sentence, so that (a subset of) the focus semantic value of the second sentence might be  $\{ [ I miss both dad and mom ]], [ I miss only dad ]], [ I miss only mom ]] \}$ . The embedded proposition in the first sentence is of course a member of this set, so the focus preupposition is verified (the Focus Principle is satisfied) with respect to the singleton set containing that proposition.

It has been customary, however, to ignore alternatives to accented exclusives (or inclusives) when computing focus semantic values (or related structures). And to be sure, in the case at hand, it is not necessary to take the focus on the exclusive seriously; the Focus Principle can be satisfied with sole reference to the focus on *my dad*, and BC make correct predictions about the contribution of *only* to the meaning without taking alternatives to *only* into consideration.

It is interesting to note, however, that in BC's theory, it is in principle excluded to take alternatives to the exclusive into consideration, because that would mean considering a Current Question with propositions based on the exclusive and on alternatives to it; since to judge the relative strength of propositions in the CQ, it would be necessary to

<sup>&</sup>lt;sup>1</sup>Similarly, in the theory of Büring (2003), the CT (contrastive topic) value of the second half of (8) will be a set of sets of propositions, one for Clark and one for each alternative to Clark, and there will be one Question under Discussion for Clark and another for Superman. Since there is not a unique CQ in this theory, however, BC's analysis is not directly applicable.

compute the contribution of *only*, something which in turn depends on the CQ, we are led into an infinite regress.

That may not matter at all in a case like (16), but there are cases where it might matter. These cases are otherwise reminiscent of cases considered in Section 1: the associate is given information, out of focus. What is new in (17) is that the rheme focus accent is on the exclusive:

(17) All natural fibre garments last longer if you handwash them. And you should ONly handwash SILK.

It is reasonable to assume that SILK is a theme focus and that the focus semantic value of the second sentence is a set of propositions roughly like this:

{ [[ you should only handwash silk ]], [[ you should preferably handwash silk ]], [[ you should only handwash wool ]], [[ you should preferably handwash wool ]], [[  $\dots$  ]], [[  $\dots$  ]]  $\dots$  }

The Focus Principle will be satisfied through the meaning of the first sentence if this is taken to be the following set of propositions, a subset of the above:

{ [[ you should preferably handwash silk ]],
[[ you should preferably handwash wool ]],
(and so on for the other natural fibre garments) }

To know what these propositions and those in the focus semantic value are, we need information from some other source on what the exclusive associates with, or on its contribution to the propositions. To that end, we may return to BC's theory, with reference to another set of propositions than the one above, given by the first sentence and satisfying the Focus Principle; it is not implausible, for instance, to assume an underlying Question like the meaning of (18):

(18) How should I wash natural fibre garments?

The whole of (17) can well be an answer to this, but in the course of (17), the CQ relevant for focus itself is revised, while the CQ relevant for the exclusive is retained. So the situation is quite similar to the one described in Section 2 in connection with (5)–(7). The only difference is that here, in connection with (17), the CQ needed for focus is not available for the exclusive for principled reasons – the exclusive could not relate to a CQ containing propositions based on the exclusive itself and its alternatives.

# 5 Outlook and Conclusion

The hypothesis that focus and *only* (when interpreted at the same clausal level) consistently rely on one and the same contextually determined proposition set, defended by Beaver and Clark (2008) and adopted by Ippolito (2008) and others, can be seen as a blend of Rooth (1985) and Rooth (1992): whereas Rooth (1985) equated the set relevant

for *only* with the focus semantic value, according to Rooth (1992: 78f.), the set relevant for *only* will tend to coincide with the set constrained to be included in the focus semantic value. Rooth (1992: 108f.) was careful to point out, however, citing evidence resembling (2)–(7) above, that this coincidence is not obligatory ("focus effects should always be optional"). This point of view has been corroborated in the previous sections: It is unrealistic to assume that the contextually determined set of propositions relevant for focus always serves double duty as the set of propositions relevant for the exclusive. Careful considerations have shown that it is difficult to uphold a simple and unitary notion of the (most immediate, most recent) Current Question, even if it is conceived of as an abstract set of propositions, to do the job for both focus (expressions) and allegedly focus sensitive expressions.

It may not be surprising that the notion of a uniform Current Question, serving as a frame of reference for a range of phenomena, from intonation via various discourse devices to particles modifying truth conditions, is problematic. But here two problem sources must be distinguished. First, it is obviously unrealistic to expect the identification of the Current Question to be a mechanistic process. The notion is an abstraction, coinciding with observable interrogatives only exceptionally. This has been pointed out many times, not least by Martí (2003). But on the other hand, once a suitable amount of idealisation is taken on board, one might expect the notion of the CQ to have a wide range of applications. This expectation has now been disconfirmed.

On a constructive note, the counterevidence, in particular the cases discussed in Section 2.2 and Section 4, has brought to light the need to distinguish two or more layers of Current Questions, one, the most immediate, relevant for focus, another, perhaps less immediate, relevant for particles. This is a picture into which BC's overall theory of the meaning of exclusives and inclusives still fits: the content can be defined in terms of sets of alternative propositions, but these expressions are less sensitive to local adjustments of Questions than focus is, more oriented towards the goal of the discourse, the Question under Discussion, the Topic in the sense of Asher (1993).

Although the counterexamples are in no way unnatural, they do perhaps strike us as exceptional, and it may well be that 99% or more of the cases conform to the BC pattern. The question why this should be so is an interesting one, and a fruitful observation may be that the interpretation of *only* and the interpretation of focus are very similar to each other, and if they both utilise the same CQ, the parallelism is enhanced and the interpretation effort is minimised.

For one thing, both focus and *only* rely on contextually determined alternatives: the members of the relevant set of propositions are in both cases based on substitutions from a restricted domain, as emphasised by Rooth (1992: 78f.) and by Martí (2003). This domain restriction, the identification of the salient set of alternatives, can be done in one step if focus and exclusive particle work in tandem, both exploiting the same contextual parameter.

Second, if the associate coincides with the focus, the meaning of the sentence with *only* is not very different from the meaning of the sentence without *only*. As noted by Schmitz (2008), exclusive meaning is a pragmatic effect of focus; a contrast implicature mirroring the exhaustive interpretation of the answer to the congruent Question; and *only*, relating to the same Question, can be seen as literalising that implicature, turning

a pragmatic inference into a truth condition. So when hearing the answer in (1), you compute an interpretation very similar to what you would compute on the basis of focus alone.

(1) – What is Lucia eating?– She's only eating PASta.

Those considerations may go some way towards explaining the fair correlation between the set of alternatives relevant for *only* and that relevant for focus. But the fact remains that the correlation is not absolute. We do encounter a more complex interaction between focus, exclusive, and Questions, where the exclusive refers to a Question a little less immediate, or the notion of a Question does not seem particularly relevant. It would seem that what we witness here is a hearer-based pressure for ease of interpretation counterbalanced by a speaker-based preference for richness of interpretation.

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# Variation in Focus

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#### Abstract

This paper takes a broad view on the notion of focus. It calls into question the idea that focus is a unitary, cross-linguistically applicable notion and also questions the implicit metatheoretical reasoning that apparently leads linguists of various schools to posit such a thing. A comparison of the Hungarian 'focus position' with the English *it*-cleft provides a case study of how even considerable similarity of form and function may spring from independent origins. This is accompanied by brief demonstrations of more blatant diversity in 'focusing' phenomena.

# **1** Introduction

There is a popular perception among linguists (directly reflected in textbook presentations like that in Saeed, 1997) that there is a single notion of focus that can be associated with a variety of grammatical phenomena in different languages. Commonly cited examples include focal pitch accenting in English (as in (1)), Hungarian 'focus movement' (as in (2)) and focus morphemes in Somali (as in (3)):

a. [What did Susan drink?] Susan drank GIN. / #SUSAN drank gin.
b. [Who drank gin?]

#Susan drank GIN. / SUSAN drank gin.

- (2) a. János meghívta Marit. János VM-called Mari-ACC 'János invited Mari.'
  - b. János MARIT hívta meg. János Mari-ACC called VM 'János invited MARI.' / 'It's MARI who János invited.'
- (3) a. Amina wargeyskii baa-y keentay. Amina newspaper FOC-she brought 'Amina brought THE NEWSPAPER.'
  - b. Amina baa wargeyskii keentay.
     Amina FOC newspaper brought 'AMINA brought the newspaper.'

All of these phenomena appear to involve those aspects of meaning that are said to be characteristic of 'focus': in particular, some relationship to the expression of 'new' information and/or contrast, and the involvement of the intuitively somehow related notion of sets of alternatives. Given such similarity of meaning, it is tempting to suggest that all of the phenomena in (1)–(3) are driven by, or sensitive to, a particular grammatical feature—call it [+focus]—which has a cross-linguistically consistent semantic correlate. This is indeed a popular assumption. One school of thought in the Chomskyan 'universal grammar' tradition even ties this feature to a particular syntactic functional projection in the left periphery of underlying sentence structure (see Rizzi, 1997, and note the crucial role of Hungarian 'focus movement' in motivating this proposal). While it is not clear that this particular proposal is intended to account for prosodic focusing as in (1), it does illustrate the depth of the assumption that focus may be treated as a grammatical primitive with universal applicability—a truly fundamental notion, then<sup>1</sup>.

In spite of this popular perception of the status of focus, it is easy to show that at least in the implied, superficial way—(1)–(3) do not involve varying grammatical expressions of a single meaning (let alone a single feature). It is a commonplace of the literature on the Hungarian 'focus position' that, despite its name, the occupants of this position do not simply correspond to those expressions that carry focal pitch accenting in English. Instead, the relevant Hungarian syntactic position is generally said to host 'exhaustive focus' or 'identificational focus' (see, for example, Szabolcsi, 1981, 1994; É. Kiss, 1998; Horvath, 2000). It is often claimed that this makes the Hungarian 'focus position' more similar to an English *it*-cleft construction than to English accent-based focusing. The accuracy or otherwise of such claims is discussed below, but it is at least clear that this syntactic phenomenon in Hungarian cannot be simply assumed to provide evidence for a grammatical primitive that also drives English focal accenting.

Similar observations may be made with regard to the Somali 'focus morpheme' exemplified in (3). Like the Hungarian phenomenon, it may bear sufficient interpretive similarities to English focal accenting to have been given the name 'focus morpheme' by linguists, but more detailed consideration shows it to have quite different properties too.

Such cases are merely illustrative of a broader cross-linguistic picture. Phenomena to which the term 'focus' has been applied are by no means homogeneous. Some are very clearly distinct from general definitions of focus, with decidedly idiosyncratic properties. Others may illustrate common cross-linguistic tendencies, but close comparison shows that significant differences may exist even between superficially very similar constructions and that such cases may require an analysis whereby distinct mechanisms happen to produce similar results.

This calls into question any simple form of universal structure-meaning mapping that is driven by a unitary focus feature. One might then retreat to a position whereby focus phenomena are accepted to be diverse in many ways, but to share certain core

<sup>&</sup>lt;sup>1</sup>Note that the object of my arguments is not merely the idea of [+focus] as a universal *syntactic* feature. Not all proposals that reify focus would do so in this particular way. My point is to question any conception of a unitary 'focus' as a universal category in human language. Indeed, what is common to all such universalist positions is arguably the idea that there is a universal semantico-pragmatic category of focus, so this might be seen as my primary target.

elements (perhaps a core set of features that may be combined and recombined to produce a variety of effects cross-linguistically). However, even this is questionable in the case of focus. For one thing, those elements of meaning that seem to crop up regularly in putative focusing phenomena relate to such fundamental aspects of communication that one must ask whether they need to be considered part of the grammar at all, in any given case, let alone ascribed to universal grammatical primitives. In section 4, I also briefly consider more philosophical arguments for positing universal (or otherwise crosslinguistic) categories like focus, and suggest that appeals to scientific methodology do not suffice to justify this practice.

# 2 Starting to lose focus: Hungarian 'focus movement' and English clefts

If focus were shown to drive syntactic movement this might lend significant support to the idea that focus is a primitive grammatical notion. However, as mentioned above, it has long been observed that Hungarian 'focus movement' does not occur in all and only those circumstances where focal pitch accenting arises in English. Commonly, the claim in the literature on Hungarian is that the 'focus position' (henceforth FP—the scare quotes remaining, implicitly) conveys 'exhaustivity' or 'identification', like an English *it*-cleft, whereas English accenting may convey simply 'information update'. Thus, FP constructions are often translated in linguistic work with an *it*-cleft, as in (2). Moreover, this apparent parallelism with the *it*-cleft has led to a distinct kind of universalist analysis: that there is a common underlying syntactic structure to FP and the *it*-cleft, even if focal accenting has a different basis (É. Kiss, 1998, 1999).

Irrespective of universal or language-specific claims, the conventional way to account for the Hungarian 'focus position' has in recent years been to assume the existence of some dedicated functional projection ('FocusP') whose contribution to compositional semantics is an 'exhaustivity operator' (Szabolcsi, 1981) or an 'identificational operator' (Kenesei, 1986; Szabolcsi, 1994):

- (4) **Exhaustivity operator:**  $\lambda x \left[ \lambda P \left[ P(X) \land \forall y \left[ P(y) \rightarrow y = x \right] \right] \right]$
- (5) **Identificational operator:**  $\lambda x \left[\lambda P \left[x = \iota y \left[P(y)\right]\right]\right]$

The assumption in all such work is therefore that some notion of uniqueness, contrast or exclusion constitutes the core semantics of this syntactic position, the difference between the exhaustive and identificational approaches being a matter of whether this uniqueness or contrast is thereby asserted or presupposed.

Evidence that FP does not introduce an *assertion* of uniqueness (as in (4)) is provided by the contrast between (6)(7-a) and  $(6)(7-b)^2$ . This exploits the fact that Hungarian can use a plural-marked version (*kik*) of the question word *ki* 'who'. It might be expected that a singular noun phrase would be acceptable in response to a *kik*-question

<sup>&</sup>lt;sup>2</sup>This example is due to Balogh (2005) (who uses it to reach different conclusions); see Wedgwood (2005, 137) for a separate demonstration that FP does not contribute an assertion of exhaustification, which is in turn based on work on the English *it*-cleft by Horn (1981).

iff it is accompanied by some explicit assertion of exhaustivity/uniqueness, which would in effect cancel the expectation of a plural noun phrase. (6)(7-a) shows that this is indeed the case: *kik* ('who-plural') can be felicitously answered with *csak Anna* ('only Anna'). (6)(7-b) shows that the use of FP does not have the same effect. Since it thus fails to have the effects predicted of an assertion of uniqueness, we must conclude that this syntactic position does not inherently introduce such an assertion<sup>3</sup>.

- (6) Kik hívták fel Emilt? who-PL called.PL VM Emil-ACC 'Who called Emil?'
- (7) a. #Anna hívta fel Emilt. Anna called VM Emil-ACC
  - b. Csak Anna hívta fel Emilt. only Anna called VM Emil-ACC

Therefore, if we are to account for FP in terms of the direct association of a syntactic projection with a semantic operator, the latter must be the presuppositional 'identificational' operator<sup>4</sup>.

For the time being, then, let us accept this identificational operator analysis. For present purposes, the important question is then to what extent this has any connection to traditional notions of focus, such as might be encapsulated in any putative universal focus feature. As I outline below, the evidence suggests that the usage and interpretation of FP sometimes has parallels with English prosodic focus but in other ways is clearly not the same. At the same time, it resembles the English *it*-cleft in many ways, but not perfectly.

Before going further, let me make clear that any genuine parallel with the *it*-cleft militates against the idea that the 'focus position' lives up to its name (in the sense of bearing any similarity to focal accenting). Clarification is necessary here, since clefts are

<sup>&</sup>lt;sup>3</sup>There are two ways to interpret (6), both of which have the same force with regard to the putative semantics of FP. The first interpretation is that offered in the main text: on the assumption that *csak* has essentially quantificational exhaustive semantics, (6)(7-a) shows how an exhaustive assertion cancels expectations of plurality, and (6)(7-b) shows that FP alone is incapable of doing so and therefore does not inherently convey an exhaustive assertion. The second interpretation would be in terms of a recent trend in the literature on *only* (e.g. Beaver and Clark, 2008, and two talks at the Stuttgart workshop) which claims that part of the semantics of such 'exclusive' items is that they are 'mirative': they cancel expectations. Balogh (2005) suggests that this is sufficient to explain the contrast in (6) while preserving exhaustive semantics for FP. But the question remains why FP in this case does not also have mirative properties. Beaver and Clark argue that 'exclusives' as a class are mirative. The crucial point here is that *asserting* exhaustification amounts to an act of exclusion. Therefore, by either interpretation of the semantics of *csak/only*, we should see 'mirative' effects in (6)(7-b) if exhaustification were encoded in FP as in (4). Note that this does not rule out the involvement of exhaustivity/uniqueness as some form of presupposition in the interpretation of FP, as argued below.

<sup>&</sup>lt;sup>4</sup>With the exception of Kenesei (1986) and Szabolcsi (1994), this seemingly rather significant point has been somewhat glossed over in the literature on Hungarian: É. Kiss (1998, 2002) speaks of 'identificational focus' but provides only an informal definition of its semantics, which appears to equivocate between the assertional and presuppositional analyses, while Horvath's recent (2000; 2007) proposals continue the tradition of opposing a general, 'information update' type of focus with what is effectively an assertion of exhaustivity, without considering a presuppositional analysis.

sometimes thought of as focusing devices. This is not the case, as a number of analysts have pointed out in the past. It is plain that whatever focal pitch accenting contributes to meaning must be orthogonal to whatever clefting contributes, since pitch accents may be shifted around within an English cleft sentence, with concomitant changes in interpretation. Thus, in addition to the 'citation form' *it*-cleft in (8) (what Prince, 1978 calls a 'stressed focus' cleft and Hedberg, 1990 calls a 'topic clause' cleft), we find cases like (9) (which Prince terms an 'informative presupposition' cleft and Hedberg calls a 'comment clause' cleft). Indeed, Delin's (1989) corpus study finds the latter kind to be more common in texts.

- (8) Debbie's been trying to take the credit for my tango-dancing prize. But it's HARRY who taught me to tango.
- (9) A: Why are you so fond of Harry?B: Because it's Harry who taught me to TANGO.

Consequently, if the Hungarian 'focus position' truly resembles the *it*-cleft, it cannot be a manifestation of the same 'focus' that putatively underlies focal pitch accenting; on the other hand, if it truly resembles focal accenting in any significant way, then it cannot be identical to the *it*-cleft. The worst situation for any universalist analysis is therefore one in which the Hungarian phenomenon shows significant similarities to both of the English phenomena—and this is what we find.

On the one hand, FP bears close parallels to the *it*-cleft. As already noted, it is typically associated with contrastive or exhaustive readings, just as the *it*-cleft is. It also precludes a classic 'topic-comment' (or 'VP-focus') reading of the sentence (a point made by Lambrecht, 2001 regarding clefts)—i.e. one in which everything except a single argument or adjunct is 'in focus' by traditional definitions such as passing the question-answer heuristic. In this respect, FP and the *it*-cleft are quite unlike focal accenting, which is commonly reckoned to allow for the expression of 'VP-focus' via placement of an accent on the rightmost argument within that VP, as in (10):

(10) A: What did John do? B: John [ $_F$  kissed MARY].

A sentence like B's contribution in (10) would not be felicitously translated in to Hungarian using FP, though it plainly involves focal pitch accenting, which relates to the crucial focus heuristic of answering a *Wh*-question.

Moreover, it is as true of the Hungarian 'focus position' as of English clefts that the locus of information update may be found at various points in the sentence. (11) is an attested example of a 'focus position' sentence that parallels 'comment-clause' *it*-clefts:

(11) Nagyon szeretek fát vágni. Ha csak lehet, [favágással] much love-1SG wood-ACC chop-INF if only may.be woodchopping-with kezdem a napot.
start-1SG the day-ACC
'I love to cut wood. If possible, it's with wood-cutting that I start the day.'

It is plain, then, that FP could not be said to host all and only focused material, if 'focused material' is taken to bear any relation to that which is focally accented in English and/or that which is in focus according to question-answer heuristics.

On the other hand, the Hungarian 'focus position' shows certain important differences to English *it*-clefts. Notably, there is a significant connection between the use of FP and question-answer coherence. Specifically, when the 'answer' part of a sentence happens to be just the size of a single, structurally simple noun phrase or adjunct—i.e. in cases traditionally called 'narrow focus' (or Lambrecht's 'argument focus')—the unmarked sentence form uses FP, as shown in (12).

- (12) Ki hívta fel Emilt? who called VM Emil-ACC 'Who called Emil?'
  - a. Anna hívta fel Emilt. Anna called VM Emil-ACC
  - b. ?? (Anna) felhívta (Anna) Emilt (Anna).

This is quite unlike the English *it*-cleft, which is by no means an unmarked way to answer such a question, let alone *the* unmarked way.

There seems little chance, then, of unifying Hungarian 'focus position' with any notion of focus that could be at work in the grammar of English: the semantic contribution of the Hungarian position cuts across what must be different notions in English (cleft-presuppositionality and focus as conveyed by accent). Consequently, there is no common [+focus] feature to be found here, even though there are undoubtedly various comparable elements of both structure and semantico-pragmatic effect.

#### 2.1 Similar effects; different causes

Since we have just concluded that the Hungarian 'focus position' is not functionally just the same as the English *it*-cleft, it is worth also noting that the Hungarian construction doesn't look quite like a cleft structurally.

Once again, there certainly are some striking superficial similarities: in both constructions a 'left-peripheral' noun phrase (or similarly sized expression) is lent some special status and commonly carries some form of pitch accent, while the rest of the sentence appears to be given a presuppositional reading of some kind. On the other hand, there are very notable differences. In particular, the Hungarian 'focus position' doesn't involve those defining characteristics of cleft constructions, (i) a copula verb whose subject is some form of pronominal and (ii) a relative clause<sup>5</sup>. Note further that Hungarian does use other, more cleft-like constructions, as in the (attested) example (13), a fairly clear indication that FP is not simply this language's way of realising some universally available, underlyingly cleft-like structure<sup>6</sup>.

<sup>&</sup>lt;sup>5</sup>Note that while Hungarian has a null copula in the present tense, this is not the reason for the lack of a visible copula in FP sentences: the past tense copula is non-null and does not appear in such sentences.

<sup>&</sup>lt;sup>6</sup>Indeed, this example shows not only an overt cleft structure in the main clause but also an FP structure in the subordinate clause that would not be felicitously translated with an English *it*-cleft.

(13) ... édesanyám volt az, aki a munkahelyén magasabb pozíciót töltött mother-1SG was that who the workplace-in superior position-ACC fill

be. in(VM)

'{It was my mother who / My mother was the one who} occupied the superior position in the workplace.'

Nevertheless, we have also seen that the *it*-cleft and the 'focus position' do regularly look alike to a very considerable extent (and on-going work with corpus-derived data suggest that the interpretive parallels stretch into areas of meaning that have not previously been considered in this connection).

What this suggests is a very natural kind of situation, but one which linguists often seem rather unhappy to recognise: rather than different manifestations of some underlying shared core, we simply have close *resemblance* across distinct phenomena. This is of course a very common situation in all kinds of extra-linguistic domains; simple examples from everyday experience include fluorescent, candescent and LED-based light bulbs, which these days can all look very similar both on the shop shelves and in use, or plasma screen and LCD-screen televisions. In both of these examples, quite distinct kinds of underlying technology produce strikingly similar results in terms of both function and superficial form. In a parallel fashion, there are many instances in the natural world of resemblances of both form and function that we know to have different origins, both in the evolutionary sense and in the sense of the 'synchronic' mechanisms involved. Different kinds of eye or wing found across animal species provide obvious examples (about which more below).

What, then, might be the particular mechanisms involved in the *it*-cleft and the Hungarian 'focus position' respectively, such that these are underlyingly distinct but produce just the degree of similarity that we observe?

My proposal is in part based on taking the surface-structural properties of the two constructions seriously. I assume that the *it*-cleft has relatively straightforward, compositional semantics: a presupposition of the existence of some unique entity is introduced through the use of a pronominal subject and this entity is identified as one that bears a certain property or properties through the use of the copula verb. This leads naturally to essentially the meaning expressed in the 'identificational operator' analysis of the Hungarian 'focus position', as given in (5) above. I further propose that this Hungarian construction also takes on this meaning as a result not of an atomic 'operator' that we stipulate to form part of the grammar, but rather as a result of more basic semantic operations. As I outline below, the details of the interpretations of the English and Hungarian constructions are closely related, but they are not identical. In the Hungarian case, interpreting the relevant construction is not such a transparently compositional process.

Both sides of this analysis involve controversial elements, which I can only briefly allude to here. The idea that the *it*-cleft has broadly transparent compositional semantics goes against a common assumption that the subject *it* is merely an expletive element. However, a growing number of analysts now recognise that this is not the case: the *it* of the *it*-cleft may not have all the characteristics of a full pronoun (such as number

and gender agreement), but nor is it typical of expletive elements (see Bolinger, 1972; Borkin, 1984; Hedberg, 1990, 2000; Geurts and van der Sandt, 2004). Crucially (as observed by Geurts and van der Sandt), the same necessarily neuter pronoun appears in all identificational copula sentences, not only clefts, as in *Guess who I saw at the swimming pool? It / \*He was Alfred Tarski?*. It seems reasonable to suggest that the lack of gender and number agreement on this pronoun relates to the very fact that it denotes something that requires identification, and as such carries minimal semantic specification itself. In any case, it is clear that this *it* maintains those elements of full pronouns that are crucial to the present argument: definiteness and its associated presuppositions of existence and uniqueness.

My analysis of FP is essentially that of Wedgwood (2005) (and a relative of that of É. Kiss, 2006, 2008), which again can only be presented in rough outline here. The core of the proposal is that the occupant of FP itself (which I define as the expression immediately left-adjacent to the tensed element in the sentence, whose occupancy is accompanied by the postposing of any otherwise pre-verbal 'verbal modifier' element in the sentence) must be interpreted as the 'main predicate' of the sentence. Unlike most analysts, I assume that all of the following occupy the same syntactic position: a 'syntactic focus', a verbal modifier when in its unmarked, pre-tense position, and a main verb in its unmarked pre-tense position<sup>7</sup>.

Evidence for this is found in the behaviour of infinitival main verbs in the presence of an auxiliary verb (and hence morphologically free of the expression of tense). (14) shows how the main verb then seems to 'compete' with any verbal modifier (such as the particle *meg*) for the pre-tense position, just as foci seem to. Still more significantly, the presence of a 'syntactic focus' causes an infinitival main verb to postpose, as in (15).

(14)	a.	János látni fogja Marit.
		János see-INF will Mari-ACC
		'János will see Mari.'
	b.	János meg fogja {hívni Marit / Marit hívni}.
		János VM will call-INF Mari-ACC Mari-ACC call-INF
		'János will invite Mari.'
	c.	#János meghívni fogja Marit.
		János VM will call-INF Mari-ACC
		Intended: 'János will invite Mari.'
(15)	a.	János MARIT fogja látni.
		János Mari-ACC will see-INF
		'It's Mari who János will see.'
	b.	*János MARIT látni fogja.
		János Mari-ACC see-INF will
		Intended: 'It's Mari who János will see.'

<sup>&</sup>lt;sup>7</sup>Note that in Wedgwood (2005) I argue for an approach to syntax based on linear processing, in the manner of Dynamic Syntax (Kempson et al., 2001; Cann et al., 2005); hence, I am not claiming here that main verbs, verbal modifiers and 'foci' move to the same syntactic *projection* in the sense of conventional frameworks, nor that they necessarily could.

Given this, my claim is that a requirement that the occupant of the position in question be interpreted as the main predicate predicts the different readings that are associated with different kinds of expression in this position. That is, it is predicted that a main verb or verbal modifier in this position will generally trigger an unmarked, 'topic-comment' reading, while the appearance of a noun phrase in this position will trigger a cleft-like 'identificational' reading.

The basic reasoning behind the first part of this is straightforward enough: a verb is inherently predicative and in fact carries sufficiently rich structured semantic material (in the form of argument and event structure) that applying this predicate to some referent (given also some temporal anchor) can in itself constitute a fully propositional property-ascription. Similar reasoning applies to the Hungarian 'verbal modifiers', which are clearly in some sense intrinsically predicative elements, though here the arguments are relatively complex (see Wedgwood, 2005, Chapter 7).

Other expressions, such as ordinary definite or indefinite noun phrases, are not thought of as being inherently predicative. What, then, should we predict when such an expression appears in a position that requires its occupant to take on a predicative reading? An answer may be sought in Partee's (1987) type-shifting principles. The type-theoretic equivalent of lending a predicative reading to an individual-denoting expression would of course be a shift from type  $\langle e \rangle$  to type  $\langle e, t \rangle$ , an operation that Partee notably calls *ident* and which amounts to the shift exemplified in (16)<sup>8</sup>:

(16)  $mary' \rightarrow \lambda x. x = mary'$ ('interpret *Mary* as the set of things that are Mary')

The informal English paraphrase given in (16) hints at where my argument is going: the result of requiring an individual-denoting expression to be read as a predicate is precisely to introduce an identificational element to the semantics of that expression. We are no longer merely dealing with Mary, but rather with those things (or more plausibly that thing) that *can be identified as being Mary*.

From this point, the full 'identificational' reading of 'focus position' sentences follows—not as a matter of strict logical necessity, but by reasonable inferences nevertheless. An act of identification implies the existence of something to be identified, whence the presuppositional element to the identificational reading. Just what is presupposed is determined by the rest of the sentence. Essentially, the predicate that is the 'focus position' expression needs a term to predicate over and also needs to be made to relate in some coherent way to the rest of the material in the sentence in which it appears. Both of these issues are resolved if we take the rest of the sentence to be what is identified by the *ident*-style predication—thus fullfilling the requirement that the pre-tense expression is the *main* predicate. Putting all of this togther, we in effect end up with just the reading given in the 'identificational operator' in (5). That is, the overall effect of the 'focus position' is (i) to abstract the denotation of its occupant from the normal meaning of the sentence, (ii) via a process of inference, to bind the remainder with an iota (rather than merely a lambda) and (iii) to apply the predicative reading of the 'focus position'

<sup>&</sup>lt;sup>8</sup>Alternatively, one might assume a shift from  $\langle e, \langle e, t \rangle \rangle$  to  $\langle e, t \rangle$ , Partee's *BE*. This would not affect my main point.

expression to this iota-expression.

For example, the interpretation of (15)(15-a) involves a grammatically encoded requirement to read *Marit* as the main predicate. It is therefore (lambda-)abstracted away from the compositional semantics of the rest of the sentence and given essentially the reading 'be Mari'. This remainder, being inferred to relate to 'that which is to be identified' is understood to represent 'the thing(s) that János will see' (and note how the selection of this as the term for the main predicate is practically forced in this case by the presence of accusative case-marking in *Marit*). The resulting reading is therefore essentially that of *The entity that János will see is Mari*.

The idea that the Hungarian 'focus position' is essentially predicative receives independent support from the distribution of quantified noun phrases across different positions in the Hungarian sentence. The data are somewhat complex but boil down to the observation that intersective quantifiers can appear in FP, while lexically simple proportional quantifiers cannot, unless they are to be interpreted with contrastive focus on the restrictor noun. Intersective quantifiers are notably those that can be thought of as cardinality predicates; lexically simple proportional quantifiers cannot, and as such fail to provide a potential main predicate. A phrasal proportional quantifier, meanwhile, allows for the possibility that one of its constituent words is taken to provide the required predicate (for reasons of space, the reader is referred to Wedgwood, 2005, Chapter 5 for more details).

For present purposes, the point of all of this is simply to give one reasonably detailed illustration, from within the domain of putative focus phenomena, of how very similar interpretations may arise from different kinds of linguistically encoded meaning. It is not necessary posit common underlying structure to account for such similarities. As noted above, there are also significant differences between the *it*-cleft and FP and the present proposals fit well with these also. While both constructions tend to be associated with a presuppositional, identificational reading, in my analysis this is intrinsic to the basic compositional semantics of the *it*-cleft, while it is something that merely follows by inference (albeit regularly) from a more basic semantic procedure in the case of FP. Given this, it is natural that the *it*-cleft should be more marked in contexts such as the reply to a *Wh*-question. The Hungarian construction is compatible with any context in which its implicit presupposition happens to be satisfied, whereas use of the *it*-cleft constitutes a more active move on the part of the speaker to *introduce* the identificational reading (hence its typical infelicity in a *Wh*-question context).

### **3** Losing focus on a cross-linguistic view

This section takes a much broader and shallower perspective than the previous one, merely noting a number of further examples of the existence of variation in what gets called 'focus' in different languages (for reasons of space, in several cases I just mention claims from the literature; I refer the reader to the cited works for examples). Even this small number of illustrations is, I believe, sufficient to cast serious doubt over the viability of 'focus' as a unitary cross-linguistic notion. The final section of the paper will address on a more philosophical level why the assumption of any such notion would be mistaken in any case.

As noted in section 1, Somali has been presented as having a 'focus morpheme', *baa*. Examples like (3) apparently bear a close resemblance to Hungarian 'focus movement' (on a conventional understanding of that phenomenon), insofar as both correspond to 'narrow' (or 'argument') focus and relate to a sense of contrast or exhaustivity. However, consideration of a broader range of examples shows that the *baa* has other, quite distinct uses. Lecarme (1999) shows how *baa* can mark what by pretty much any definition are topics, in addition to foci:

 (17) árdaygan baa wuxuu dóonayaa ínuu arkó warqáddiisa this.student F expl-F wants comp see his.note
 'This student wants to see his notes.'

Lecarme argues that *baa* can mark both contrastive and non-contrastive topics. This is debatable given the examples Lecarme presents (as is perhaps inevitable: it is hard to see how contrast can ever be fully divorced from the business of predication and assertion, for standardly Gricean reasons). The way might just be open therefore to maintain at least an analysis in the style of Vallduví and Vilkuna (1998), whereby *baa* could be considered a marker of contrast (or 'kontrast'), which might separately combine with focus and topic features. Note, however, that even this kind of analysis would have to recognise that this contrast feature would be manifested in the grammar in a rather different way than in other languages: Lecarme points out that *baa* can be attached to an expletive element, as in (18) (where it is manifested as the allomorph *búu*), and thereby in effect fails to attach to the point of contrast within the VP, which in this case is the verb meaning itself:

- (18) A: (sáaka) wax má akhriyay? today thing Q read'Did he read (today)?'
- (19) B: Máya, wax búu qoray No thing F wrote
   'No, he wrote' (lit. 'No, he wrote THING')

The Siberian language Even is another that appears to use the same morphological marking on narrow foci and on contrastive topics. Again, this might be taken as support for a grammatical primitive relating to contrast, but again it has idiosyncratic properties that undermine any simple claim of universality. Matić (2007) reports that the relevant suffix in Even relates not to just any sense of contrast but specifically to closed sets of alternatives, typically with just two members. This is notably quite different to many other kinds of putative contrast marking—including the situation in Somali described above, where potentially open sets of alternatives make it difficult even to judge whether a *baa*-marked topic is contrastive or not.

While Somali and Even appear to grammaticalise (different) meanings that cut across the traditional information-structural categories of topic and focus, Aghem seemingly grammaticalises a multitude of distinctions that roughly fall within traditional definitions of focus, thus undermining the unity of the notion of focus from the opposite direction. Watters (1979) (cited in Bearth, 1999) claims that complex interactions of morphology and word order allow Aghem to encode all of the following distinctly: (i) information ('assertive') focus, (ii) corrective ('counter-assertive') focus (i.e. 'X, not Y, is P'), (iii) 'counter-assertive polar' focus (i.e. assertion of a proposition following its denial), (iv) focus that allows an inference to be drawn, as in 'they gave the dogs [ $_F$  porridge] (and that's why they are sick)'. Of this list, only (i) fits straightforwardly into existing universalist theories of focus. Note that even (ii) looks subtly different to other kinds of 'contrastive focus' (going by Watters' description).

It is notable that Aghem has been cited as a 'focus movement' language alongside Hungarian, as support for the existence of a focus position in universal grammar (É. Kiss, 1995). Yet the details of focus-related phenomena in this language speak of considerable cross-linguistic diversity, rather than of language-specific exploitation of a common focus primitive.

Luganda is a language that seems to mark focus straightforwardly, if one only considers simple question-answer cases. In this case, the language appears to mark the part of a sentence that answers a Wh-question by the absence of a certain prefix, traditionally known as an 'augment'. This might be dealt with by the assumption that focus licenses the absence of the augment (as Hyman and Katamba, 1993 argue), but this phenomenon once again proves to have very different properties to those associated with focus in more widely studied languages. For example, Hyman and Katamba (1993) note that this putative focus-marking is neutralised within the scope of negation; something which they note to be "quite pervasive in African languages", but which is not characteristic of more widely discussed 'focus-marking' phenomena. Also, the presence of an adverb in a non-negative main clause necessitates would-be 'focus-marking' (i.e. the absence of an expected augment) on some constituent within the clause, even if the interpretation is predicate (or VP-) focus. Most unexpectedly for a focus-marking device, the relevant distinction is neutralised in the case of proper nouns, which always lack the augment, and demonstratives, which always carry the augment. Perhaps relatedly, Hyman and Katamba note that the augment can often be translated with a definite article (though they argue convincingly that it is not one).

Whatever the proper description of the augment is, these properties strongly suggest that it cannot be simply defined in terms of a category of focus that is also operative in phenomena like English accenting, or indeed Hungarian 'focus movement'. Yet it does overlap substantially with traditional notions of focus, including passing the key test of marking the answer to a *Wh*-question. Taken together, these facts imply similarity of effects, rather than identity of (grammatical) causes.

As a final point on Luganda, note that even if one could justify the idea that this is 'focus' in some meaningful sense, it would have to interact with the rest of the grammar in ways that differ from other languages. For example, Hyman and Katamba show that interpretations that might be called predicate (or VP-) focus, polarity focus and focus on tense or aspect all correspond to one linguistic form. This is not what we would expect from other cases of putative focus-marking, including both English accenting and Hungarian 'focus movement', where such interpretive distinctions are associated with quite different linguistic forms. Finally, English shows the inadequacy of 'focus', or related primitive notions, in the face of the diversity of relevant phenomena within just a single language. Consider the case of 'focus fronting', as in the second part of (20) (an utterance attributed to Jerry Fodor by Prince, 1999):

(20) Let's assume there's a device which can do it—a parser let's call it.

Vallduví and Engdahl (1996) rightly note that this has different properties to focus-byaccent, but claim that it still fits nicely within their universalist view of 'information packaging': on this view, the fronted expression instantiates both a 'Link' (essentially, a contrastive topic) and a 'Focus'; that is, it sets up a background 'set or scale' and then picks out an element of that set or scale. But note that this would describe *any* focused item that may be read contrastively and therefore fails to provide sufficient conditions for the use of fronting. Furthermore, Prince (1998, 1999) has shown this kind of construction to be subject to subtle kinds of variation, cross-linguistically and cross-dialectally, above and beyond what we could call 'contrastive focus'. Thus, Vallduví and Engdahl's attempt to squeeze this construction into a universally applicable schema actively suppresses an accurate characterisation of its particular properties. It is easy to see that the risk of significant distortion of the empirical picture is high when such an approach is scaled up to the level of cross-linguistic analysis.

# 4 Assumptions of universality

Some readers may be unmoved by the above demonstrations of variation in putative focus phenomena. It might be argued that such variation is merely superficial—or, at any rate, that we should entertain the idea that it might be so. Moreover, it is key to any scientific endeavour to seek to make unifying generalisations through bold hypotheses, not simply to accept and re-describe the data. Is it not therefore the correct way to proceed to assume that there is a universal category of focus unless and until it is shown to be otherwise?

The answer is no, for a number of reasons. First, it is quite unclear what could falsify such a supposition, if not the kind of 'superficial' evidence presented above. I will not pursue this point, however, as this is not the place to delve into the details of falsificationist philosophy of science. Here, I am more interested in the following points: (i) it matters *which* generalisations we try to make and (ii) comparison with parallel cases in the natural sciences shows the approach to universal categories described in the previous paragraph to be a fallacy.

(i) is a crucial corollary to the mantra that we should 'pursue the strongest hypothesis'. Many absurd hypotheses could be described as being 'strong'. Meanwhile, the notion of comparing the strength of hypotheses implies that we have already identified a coherent, appropriate domain about which to hypothesise. Is this really the case when we speak of notions like focus in a cross-linguistic context?

Here the accusation of dealing in superficial phenomena cuts both ways. If we seek to identify those things that are so fundamental as to underlie the structures of all human languages, we should be wary of taking surface effects, albeit ones that appear in

similar forms across different languages, and reifying them as theoretically significant atomic entities. Surface similarities are of course there to be explained, and we can all agree that doing so means making generalisations; it does not follow that the relevant generalisations should be stated *in terms of* the observed similarities. Whatever is truly common to all languages need not bear much resemblance to the effects that it ultimately produces. Therefore, to question notions like universal focus features on the basis of observed cross-linguistic variation does not constitute an unscientific refusal to go beyond superficial data; on the contrary, it implies a demand for a higher degree of abstraction: a greater separation of surface effects from underlying causes.

This point could of course be applied to linguistic theory more generally, but at this stage I want to emphasise that the properties of focus make it a notion that is particularly prone this criticism. Those properties that are typically ascribed to focus are generally associated with domains that lie outside linguistic structure, but interact with it (focus is, after all, regularly described as an 'interface phenomenon'). Thus, 'newness' or noteworthiness clearly pertain to broader, extra-linguistic faculties of information processing and to general cognitive issues of salience and selective focus of attention. Even related ideas that have been modelled in terms of logical semantic formalism, like assertion and contrast (or more loosely the relevance of alternatives), are essentially matters of communication and of information processing, rather than being necessarily matters of *linguistic* competence. Moreover, these ideas are truly fundamental within their respective extra-linguistic domains.

It is therefore not *a priori* necessary to invoke a linguistic primitive (such as a grammatical feature) to explain any given 'focusing effect' in a given language, let alone to explain the existence of a number of similar effects cross-linguistically. It is hard to imagine how linguistic communication could occur without ideas like newness and contrast seeming significant, even if no language were formally sensitive to them within its grammar. Note that this is not to deny that grammars *may* be sensitive to such notions—it is always a logical possibility that a given language may conventionalise a particular aspect of communication—but certainly it does not take a universal linguistic primitive to explain how languages regularly appear to show a concern for such matters.

Let us now turn to point (ii) from above. In comparable scientific domains we unproblematically assume many kinds of 'category' to be rather loose: descriptively useful labels rather than minimal and invariant theoretical objects.

For example, an obvious analogy to the study of comparable phenomena across different languages is that of comparable biological organs across different animal species. Some organs may be truly very similar in a wide variety of species, constructed from similar proteins as well as performing closely comparable functions. Others, however, may show significant variation at all levels while still being recognisably part of the same general 'category' of organ. The eye is an example of the latter kind of organ. As Land and Fernald (1992) describe, the animal world contains a rich variety of solutions to the problem of perceiving the outside world via the processing of light, from the pinhole camera-like eyes of the chambered nautilus to the complex interaction of cornea, lens and retina in eyes like those of humans. Both of these contrast with the compound eyes of flies: arrays of individual image-processing units which must interface with the brain in such a way that a composite picture is perceived. In addition to such gross morpho-

logical differences, eyes plainly differ in function, some being adapted (for example) to process subtle colour distinctions or or provide sharply focused images at considerable distances, while others may provide only crude impressions of light and shade. The material composition of eyes is also subject to significant variation: Land and Fernald describe how some are apparently evolutionary innovations for optical use, while in some species proteins have identifiably been co-opted from use in other tissues in ancestor species. This reminds us that variation in eyes across species is attributable not only to divergence and specialisation over time but also to convergence, eyes having evolved independently several times in the history of animal life.

Far from requiring us to assume identity until shown otherwise, the sensible and fruitful scientific approach to the business of understanding eyes clearly involves recognition of the value of descriptive labels that cover broadly similar physical forms with broadly similar functions. Useful as the term 'eye' is in cross-species comparison, it does not describe the same thing in each of its uses, nor is variation in eyes best understood as parameterisation or as the result of combinations of a small number of primitive elements (note that one could make essentially the same argument regarding, say, 'lens' as I am making regarding 'eye').

There is in fact one level at which a large proportion of the animal world's eyes are to some extent unified: the level of genes. There are surprising commonalities at this level<sup>9</sup>. It seems that certain bits of genetic coding relevant to the production of eyes have been co-opted repeatedly in the course of evolutionary history. Does this in any way swing the analogy back in favour of universal notions of linguistic focus? Not really. Note how far removed the genetic level is from any of the observable properties of a given manifestation of the notion of 'eye'. There is no chain of reasoning from the surface similarities of some species' eyes to the existence of certain sequences of DNA that many species genuinely have in common. A mouse's eye is still emphatically not the same entity as a fly's eye. Nor would assuming that they were the same have helped in making the relevant genetic discovery (though recognising very broad functional and formal *similarity* undoubtedly was involved). In any case, it is entirely unclear what could be the analogue of the genetic level when it comes to discussions of linguistic structure.

One thing that is clear is that a notion like focus, which is so closely drawn from observable form and meaning, could not be considered analogous to shared genetic material. Bringing together the strands of argumentation in this section, the role of the genetic level within the broader analogy with cross-species comparison points up how positing a universal notion like focus constitutes the reification of an observed *effect* of language structure and use, at an essentially arbitrary level of detail—and indeed one that is suspiciously superficial. The biological analogy shows that the level at which similar-looking phenomena really share the same material may, at least in principle, be at many removes from observable phenomena—if they truly share anything at all.

The degree to which putative 'focusing phenomena' across and within languages really resemble each other, let alone work with the same grammatical primitives, is in the end a wholly empirical matter. It will not be clarified by working to an assumption

<sup>&</sup>lt;sup>9</sup>Thus, Halder et al. (1995) report that relevant sections of mouse gene spliced into a fly's DNA can cause normal fly eyes (not mouse eyes) to grow on different parts of the fly's body.

of maximum similarity. Above, I have given some reasons to believe that such resemblances are limited, though nonetheless interesting. While much further cross-linguistic comparison and detailed analysis is undoubtedly required, this strongly suggests that our approach to explaining such phenomena should move beyond the simplistic approach of reifying focus (or a minimal set of related notions) as a part of the grammar; instead recognising it to be a cover term for numerous *effects* of grammars and their uses.

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# "Only" as a Mirative Particle

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# **1** Mirativity

The concept of **mirativity** was introduced in typology by DeLancey (1997) for certain "tenses". DeLancey refers to earlier traditions in "Balkan Linguistics". Malchukov (2003) uses it in a typological overview of constrastive markers for the origin of certain contrastive markers. A mirative marker indicates that whatever it marks is surprising.

The fact that one can express surprise does not need a special explanation, but the fact that one can do it with a range of grammaticalised expressions in a whole range of languages does. The explanation has to make a connection with a tendency in interpretation to go for the unsurprising. The same tendency is assumed in probabilistic disambiguation, where one tries to interpret the linguistic expression by giving it the meaning that is most plausible in the context (this is just the most rational way to disambiguate, if other resources do not lead to a unique reading). Another well known instance is to go for stereotypical interpretations. That means that interpreters will avoid the surprising unless told not to —which would be precisely the aim of the mirative marker. Mirativity is useful because it protects surprising content from correction by interpreters.

In English, one can find the markers *even, still, already* and *only* that seem to be mirative (another group of mirative devices are the adversative markers: these are not discussed here). In all four cases, they are specialised mirative markers, they express surprise at the large size of a quantity (even), surprise at the small size of a quantity (only), surprise at the early time of some event or the advent of some state (already) or at the long continuation of a state (still). Surprise would be a question of conflict with an expectation. Together this gives the following table:

even:more than expectedonly:less than expectedalready:earlier than expectedstill:later than expected

It is relatively simple to state the semantics of the four particles informally in a uniform way.

(1) Bill is still in Paris

(1) states or reconfirms that Bill is in Paris at the moment of speaking and presupposes that he was expected to have left from there before the moment of speaking. The point of the utterance is to assert that the presupposed expectation is false.

(2) Bill is already in Paris

(2) states that Bill is in Paris but presupposes him being elsewhere with the intention of going to Paris and the expectation that he would not be in Paris yet. The point of the utterance is to assert that the presupposed expectation is false.

(3) Even Bill is in Paris

The sentence states that Bill is in Paris and presupposes an expectation that others but not Bill would be in Paris. The sentence asserts that the presupposed expectation is false.

(4) Only Bill is in Paris

(4) states that it is Bill who is in Paris and presupposes an expectation that "more than just Bill" would be in Paris. It asserts that the presupposed expectation is false. This is a simple approximation to the semantics of the mirative particles if they are the outermost operator in an assertion and the point of the utterance is to express the surprise. In the case of "still", "already" and "even", the host itself states new information, expected to be false. *Only* is special because the information stated by the host is expected to be the case: the expectation was "Bill and more", and this includes Bill.

The semantics of mirativity seems straightforward and can be isolated from the other aspects: a presupposed expectation is asserted to be false. It is tempting to think of the mirative markers as correction markers. And not entirely wrong because they can be used in this role.

(5) A. Bill must be back home.

- B. No, he is still in Paris.
- A. [At a meeting in London.] Where is Bill?
- B. He is already in Paris.
- A. [Idem] Bill must be here.
- B. Even Bill is in Paris.
- A. The whole sales team is in Paris.
- B. Only Bill is.

But —as it turns out— the expectation can be much weaker than the belief of the interlocutor (or the common ground, or a second speaker) and can even be vanishingly weak: a mere suggestion or what somebody might think. Especially in subordinate occurrences of *only*, the expectation can almost disappear.

Examples like (6) should therefore not be taken too seriously as counterexamples to a mirative analysis. It seems enough that the alternative to the presupposed expectation of the speaker or everybody is also under consideration in the context.

(6) [I/everybody expect only John to come.]If only John comes, we will have enough to eat, but if he brings his son...

The weakening of presupposition in particles is a general phenomenon and can be related to the "semantic weakening" and "pragmaticisation" that is attendant on grammaticalisation. In the case of mirative particles, Fong (2003) reports that "already" in Singapore can function as a perfective marker (without mirativity) and Östen Dahl (1985) takes it that there is a general tendency of the *already*-type particles to become perfective markers. Fong describes the process by which "already" can mark perfectivity as a case of semantic epenthesis: "already" normally marks two semantic features: surprise and perfectivity. In the perfective uses, surprise is still marked by "already" but it does not become part of the final interpretation that the hearer reaches and was never a part of the interpretation that the speaker intended the hearer to reach.

While this is an interesting way to look at what is going on here, there is another avenue: weak presupposition. The presupposed expectation can be common ground (before the speaker had the new information), they can be the speaker's or the hearer's, but they can also be the expectation of a third party or of a possible third party. The weakest expectation is "there might be somebody who might think that A". The presupposition resolution mechanism tries to find the weak presupposition in the common ground and in the opinions of highly activated persons, but also allows suggestions and attitudes by other people as antecedent and can in the last resort just assume that the weak presupposition is somehow thinkable.

The outcome of presupposition weakening and semantic epenthesis is nearly the same. The weakening approach finds confirmation in what one finds as "presupposition" in the weaker versions of "wel" or "doch": in the strong versions they are correction particles, in the weaker versions, the presupposed proposition that they confirm is merely suggested or even completely absent Hogeweg (2005), Zeevat (2004), Karagjosova (2003). In fact, the strength of the presupposition antecedent is the key factor in keeping the different meanings of these particles apart in a context (and the factor that determines the intonation, the other clue for disambiguation: overt antecedents lead to contrastive intonation).

It is well-known that "even"-type particles are a source for the non-mirative additive particles (Malchukov (2003)). One may speculate that "still" may be a source for progressive marking. *Only* has a tendency to turn into an adversative particle, as in Dutch or English and in Hungarian<sup>1</sup>...

(7) Peter is erg aardig. Je moet alleen oppassen als hij gedronken heeft.Peter is very nice. But/Only you must take care if he has been drinking.

There is an almost universal agreement that *only* means "to the exclusion of others". Barwise and Cooper (1981), Rooth (1992), van Rooy and Schulz (2005), Horn (1969), Ippolito (2006).

<sup>&</sup>lt;sup>1</sup>Gyuris, unfortunately only published in Hungarian

(8) Only Bill is in Paris Nobody but Bill is in Paris.

The discussion is then about what to do with the "prejacent", the host of *only*. For some, it is asserted, others defend that it is presupposed, or that its topic "x is Paris" is existentially presupposed. Ippolito even lets the presupposition be "If somebody is in Paris, Bill is". van Rooy and Schulz (2005) makes the prejacent an implicature. A healthy exception is Atlas Atlas (1993).

Zeevat (2007) notes the following puzzle about *only*. In Rooth (1992), an assertion like "John likes SUSAN", with focus on "Susan" turns out to mean the same as "John likes only SUSAN". But, intuitively, the meaning is not the same. My conclusion in 1994 was that *only* meant "less than expected" or that related to widening of the domain, but I did not see my way to a full treatment of *only* based on that view<sup>2</sup>. The same puzzle arises in question-answer pairs.

(9) A. Who showed up?B. Only John.

B is already expected to give an exhaustive answer to the question. The addition of *only* would then be superfluous. The mirative view makes it easy to understand: more people were expected to show up and only John came.

Umbach (2005) has a similar and beautiful example (10) for this phenomenon.

- (10) (Things have changed in the Miller family.)
  - a. Yesterday, RONALD went shopping.
  - b. Yesterday, only RONALD went shopping.

In (10a), Ronald went instead of Susan (he would not normally come along), whereas in (10b), one understands that he normally goes with Susan. In both cases, Ronald goes alone. If *only* just meant exhaustivity, the contrast cannot be explained. We arrive at the different interpretations by constructing the expectation that is violated in (10b): Ronald always goes shopping with Susan. In (12a) it is not necessary to construct an expectation that a larger group than just Ronald goes shopping. In fact, it is difficult to get a reading where "Ronald" contrasts with "Ronald and Susan", presumably because *only* is required for expressing that reading.

I want to defend the following four theses in this paper.

- 1. The semantic contribution of *only* is only low quantity mirativity: less than expected.
- 2. Other aspects —in particular exhaustivity— are an effect of "focus": the host has to be interpreted as the exhaustive answer to its topic question.

<sup>&</sup>lt;sup>2</sup>My main reason for taking this up again was reading part of an earlier manuscript of Beaver and Clark (2008). The position of this paper is close to the final version but different in not attributing exclusivity to the semantics of *only*, but to the exhaustive interpretation of the host forced by *only*. The proposed "semantics" of mirativity and the treatment of *only if* are new elements. I would claim that the treatment provided here makes it easier to see the relation with the other mirative particles and to deal with the grammaticalisation of *only*.

- 3. Only forces the host to have that interpretation.
- 4. Except for (2) and (3) an *only*-sentence means the conjunction of *only* and its host.

(4) would be the ideal for particle semantics and seems viable for most particles with negation particles and floating quantifiers the exception. The host means whatever it means, the particle adds something.

(1) denies the received view: *only* does not mean "to the exclusion of others". That *only*-sentences entail exhaustivity is the effect of disambiguation: the interpretation as the exhaustive answer to the question corresponding to its topic (2) is a possible meaning of the host, forced by the presence of *only* (3). *Only* itself has a different task, denying an expectation.

Section 2 develops the meaning of *only*, section 3 discusses weak presupposition as an analysis of expectation, section 5 applies these ideas to the logic of *only if* and the conclusion contains a brief discussion of "association with focus" and the other mirative particles.

# 2 The Meaning of "Only"

The first point to be made has to do with quantity mirativity. If *only* occurs in a host, it can only express quantity mirativity if the host specifies a quantity. This forces an interpretation on the host that turns it into an exhaustive answer to a quantity question. It is clear what the question is: it is obtained by leaving out the focused element from the host and replacing it by a suitable wh-element. Schematically the host is then H(C) with *C* the focused element. The question is then ?xH(x) and its exhaustive answer is *C*.

The second point to be made is that surprise at a low quantity presupposes the expectation of a higher quantity: somebody must expect the exhaustive answer to ?xH(x) to be "C together with other persons or things".

This can be provisionally notated as exp(H(C+O)). An *only*-sentence then confirms the expectation that *C* belongs to the answer and denies that *O* is part of it. *Only* therefore presupposes exp(H(C+O)). It asserts that anything below *O* lacks the property  $H: \forall x \subseteq O \neg H(x)$ .

Let's apply this to the Umbach example (11):

(11) Yesterday, only Ronald went shopping.

The presupposed expectation is that, last Saturday, others O would have gone shopping with Ronald. Given the setting, O must resolve to the singleton  $\{s\}$  consisting just of Ronald's wife Susan. This gives the representation (12) (I will write the presupposition before ":" and the assertion after it.).

(12) 
$$exp(S(r+s)): \neg S(s)$$

The utterance implicates that Ronald is the single person from the Miller family who went shopping yesterday—that part of the expectation is not denied. It is properly denied that Susan went shopping with Ronald. The denial involves a correction of the expectation: Susan was expected to go, but didn't. If the utterance is denied as in (13) the nature of the expectation changes. The information that the utterance illustrates how the Miller family habits changed makes it impossible to assume that Susan and Ronald had a habit of shopping together on Saturdays. It seems that a sociological fact of couples normally doing the shopping together on Saturdays will now have to underpin the expectation.

(13) Last Saturday not only Ronald did the shopping.  $exp(S(r+s)): \neg \neg S(s)$ 

The result of the negation is that the expectation is implicated to be true: the Miller couple did the shopping together last Saturday, since this is the evoked and uncorrected expectation. There is another expectation involved here: the expectation that Ronald would be shopping alone, presumably based on an opposite habit. This expectation is evoked by the negation: without that expectation, there is no reason for denying that Susan did not go.

While this is an approximation and explains the intuitions about who it is that accompanies Ronald in (13), it is too weak. Both the positive and the negative example seem to entail that Ronald went shopping, whether by himself or in company and not just to implicate it. Also the analysis fails to exclude a situation where a relevant other person, different from the expected Susan went along shopping with Ronald, e.g. his mother in law. And this is intuitively ruled out in the positive case.

The problem is that we only dealt with *only*, treating the host sentence merely as a convenient source for semantic material to slot into the semantics of *only*. This semantics can be given abstractly as: *only*  $\alpha(c)$  presupposes an *x* that is expected to have the property  $\alpha$  together with the disjoint  $c^3$  and denies  $\alpha$  of *x*.

(14) 
$$x, exp(\alpha(c+x): \neg \alpha(x))$$

What does the host sentence contribute? The use of *only* does not make sense on a host  $\alpha(c)$  unless  $\alpha(c)$  is interpreted as determining the "quantity" *c* as the exhaustive answer to the question "wh- among the *C* has the property  $\alpha$ ?". If  $\alpha(c)$  merely gave a non-exhaustive answer to that question without a further claim that that is the full answer, no quantity mirativity could sensibly attach to it. If *c* is merely one of the true answers to the question, *c* could not be less than expected, since the other answers are unknown and maybe add up to the expected quantity. An exhaustive answer can be seen as a non-exhaustive answer together with the statement that other answers, disjoint from *c* or exceeding *c* are false. This can be written as follows.

(15) : 
$$\alpha(c), \forall x (x \not\subseteq c \to \neg \alpha(x))$$

The two semantic representations can be combined into (16).

(16) 
$$x, exp(\alpha(c+x)) : \neg \alpha(x), \alpha(c), \forall x (x \not\subseteq c \to \neg \alpha(x))$$

<sup>&</sup>lt;sup>3</sup>Here and elsewhere, x + y is used for a sum of disjoint entities. This is not a restriction: if x and y are not disjoint, one can take  $y \setminus x$  instead of y.

Now a simplification is possible.  $\neg(\alpha(x))$  is a consequence of  $\forall x (x \not\subseteq c \rightarrow \neg \alpha(x))$  and so it can be dropped.

But also the status of  $\alpha(c)$  changes, since it is part of the expectation. This leads to another simplification which however needs a closer look at expectation.

The operator "expected" is only correct for the positive Umbach example, where the expectation based on our take of the habits of the Millers is a full-fledged member of the common ground. But already in the negative example the expectation is much weaker. Do we really expect that couples do the shopping together on Saturday? This is just a tendency and far too weak to put any money on Susan and Ronald going together especially when they have a habit of not doing so. The expectation is much better analysed as weak presupposition, needed anyway in the analysis of many particles. In the examples, weakly presupposed shopping by Ronald and Susan could pick up both a habit of the Millers of shopping together or the general habit of couples shopping together on Saturday. These problems are better addressed by weak presupposition: the common ground should contain a reason for thinking that p is true given, where p is the expectation. There may be reasons for thinking both that p and that  $\neg p$ , and there may be a reason for thinking that p even if there is more reason for thinking that  $\neg p$ . Weak presupposition in addition seems to be independently required for the meanings of other particles, for negation, for questions and for intonation.

## **3** Weak Presupposition

Weak presupposition has been around for a long time, especially in areas like negation and questions. What makes it weak is that the weakly presupposed material does not need to hold in the common ground or in the common ground extended with local information such as normal, strong presupposition requires. The weak presupposition may be in the common ground as such, but it can equally well be in the common ground as a suggestion, as an opinion of somebody or merely as a plausible inference. The claim is that negation weakly presupposes the opposite opinion in the context (which then gets denied) and that wh-questions weakly presuppose the truth of the corresponding existential statement (which is enough for making it plausible that it can be answered). Some maintain that the difference between positive and negative polar questions can be explained by weak presupposition: positive polar questions weakly presuppose the negative answer and negative polar questions weakly presuppose the positive answer. Weak presupposition is not important for the formal semantics of questions and negation, but from the perspective of discourse and dialogue coherence, it is hard to overrate it. The weak presupposition that finds a proper antecedent for a question or negation will give vital clues about why the question arose and how it should be interpreted and related to the speaker's intentions or to what exactly it is that the interlocutor is denying.

In the area of particle semantics, weak presupposition seems to be even more unavoidable. A correction marker requires a statement to be corrected, an adversative marker, something that is "adverse" to it, an additive marker something that it is in addition too, a confirmation marker something that it confirms. And quite systematically one finds that the corrected statement does not need to be entailed in the local context of the marker (one can correct Harry's beliefs just as well as the interlocutor's or one's own), that the adverse information is not directly given but must be inferred by plausible inference, that additive antecedents are embedded under operators like *perhaps* or even *Bill dreamt that* and that confirmation markers can confirm information that is given under a similarly wide range of operators.

Not that anything goes. Negative contexts (like negation and doubt) do not provide good antecedents (but their negations may be picked up). Also proper contexts for antecedents can be blocked by denying the truth of the antecedent or casting doubt on it.

(17) Mary doubted that she would pass. ??She did indeed./She failed indeed.John thinks that Mary is in Spain. Bill is in Spain too.John thinks that Mary is in Spain, which cannot be true/which I doubt ??Bill is in Spain too.

The conditions on what is a good antecedent are also not uniform for the different markers.

(18) Bill dreamt that Mary was in Spain. She is indeed.Bill dreamt that Mary was in Spain. ?Susan is there too.Bill dreamt that Mary was in Spain in June. ??She is there again.

One can try to develop a single operator that generalises over all possible operators (see Zeevat (2004) for an attempt) but in the light of the different acceptability of the examples in (18) this seems misguided and at best only partly correct. There is also a default when different resolutions are possible: one needs to go for the "most accessible" one and this default is obscured by having a single operator that lumps all the possibilities together.

Another problem with such an account can be illustrated by the following pair.

(19) Hij komt WEL. Hij komt wel.

The first example needs a proper antecedent with an overt negation and is a correction of the opinion expressed by the negated sentence (it can be the correction of the belief of a person different from speaker or hearer):

(20) Piet denkt dat Jan niet komt. Hij komt WEL.

The second example means something like, Don't worry. In my opinion, he will come. This is similar to *WEL* in presupposing the negation of the host, but this time it can be an unexpressed thought which is attributed to the audience. The way in which the antecedent is given seems to be decisive for the ambiguity between a proper correction, based on what the speaker believes to know and the much weaker disagreement with the negation expressed in the other case.

It would seem that the different degree of toleration for weak antecedents can be much better understood as the outcome of a natural historical process<sup>4</sup> in which proper lexical presupposition triggers lose descriptive meaning in favour of a linking and distinguishing function, acquire more toleration for inaccessible antecedents and lose their ability to force accommodation.

The property of non-accommodation (also here a question of degree) is the third property that sets weak presupposition apart from strong presupposition. If weak presupposition cannot be resolved to the discourse context, as a last resort they can be assumed to hold under an operator like *it might be thought that*. This would deal with the cases of negations and questions where no antecedents seem to be around or with the "extremely grammaticalised" uses of particles like *wel*.

The three properties of weak presupposition are connected. Little lexical content means that the presupposition will not end up in a predication that must be true in the local context of the trigger, which allows it to have antecedents that do not need to exist or be the case in that local context. Linking and distinguishing to discourse elements that one first has to accommodate does not seem useful, quite apart from the fact that signaling that the discourse context has certain components when it does not, sits badly with the intuition that the discourse context has common ground status.

The notion of weak presupposition can be implemented by a variant of the proposal of van der Sandt (1992) for strong presupposition. The weak presupposition is provisionally represented at the site of the trigger. The accessible contexts are then searched in the normal order, with two additional options. The first is a recursive search in the content of their subordinate contexts which are introduced by positive attitude and modal operators. The second option is inference: does the context offer a reason r for thinking that p. This comes down to searching with a search term [r, normallyifr, p] and requires an axiomatisation of "normally if". Instead of failing or normal accommodation when the antecedent cannot be found, the most tolerant class of weak triggers can just add the always uncontroversial: *it might be thought that p* to the outermost context, as a last resort.

The most tolerant class of weak triggers —to which *only* belongs— is constituted by questions, negations and confirmation and correction markers. Additive markers are more restricted in the range of operators under whose content can be searched and do not allow the last resort reading. Adversative markers seem similarly restricted. This is not say that these classes of particles are homogeneous. This paper is however not a place to engage in a proper study of the fine structure involved.

The application to *only* is to replace the notion of expectation by weak presupposition of the kind that can take antecedents from any kind of positive context and from inferential processes and as a last resort can add "it might be thought that p". In this, it would be comparable to *wh*-questions, negation or to particles like *indeed*.

This makes the meaning of *only* into (21).

<sup>&</sup>lt;sup>4</sup>A much more systematic argument for differentiation by a historical process can be developed here by comparing the distribution of classes of particles. For example, *only*, *but*, *just*, *merely* are all exclusive particles and *exclusively* is an adverb with exclusive meaning, but they vary substantially in their distribution. As another example, the Russian particles *i*, *tozhe* and *takzhe* are all three additive but have completely different syntactic and semantic properties.

(21) x, weak( $\alpha(c+x)$ ):  $\neg \alpha(x)$ 

And the meaning of the combination of *only* and its host  $\alpha(c)$  into (22).

(22)  $x, weak(\alpha(c+y)) : \alpha(c), \forall x(x \not\subseteq c \to \neg \alpha(x))$ 

I.e.  $\alpha(c)$  is both weakly presupposed and asserted. This is a strange status: as an assertion  $\alpha(c)$  should be new, as a weak presupposition, it is given. Assertions that are not new are normally marked by confirmation markers such as *indeed*, unaccented *doch* and the like. It seems natural to claim *only* is a confirmation marker with respect to prejacent.

A technical proposal to deal with material that is both weakly presupposed and asserted is to make it both strongly and weakly presupposed. The weak presupposition forces a search for the material and if it turns out to be present in the accessibility path of the trigger, this is the antecedent for both the weak and the strong presupposition. If the search for weak antecedents however leads to a weak antecedent, the accommodation attendant on strong presupposition will add the material to a context on the accessibility path of the trigger, nl. at the point of the operator on the weak antecedent.

This comes down to the statement that  $\alpha(c)$  is either resolved to an accessible antecedent, or resolved to an inaccessible antecedent with a further accommodation in an accessible context. The further accommodation in case the resolution is to an inaccessible attitude or suggestion is a confirmation of that attitude or suggestion. In neither case, it can be new focal material of the only-sentence that can be in the scope of a negation.

The technical proposal is presumably the correct analysis of confirmation marking. (23) is correct in identifying the assertion with the weak presupposition, but it would correspond to an instruction to identify p in the context (including the non-accessible parts under a positive operator) followed by an update with p. But if p is found in the accessibility path of *indeed*, this would lead to a spurious update with p, i.e. garbage with the potential of generating confusion.

(23) indeed(p)weak(p): p

So the correct view is as in (24) which avoids spurious updates. The ideal for particle semantics is to see indeed(p) as the conjunction of the assertion that p and the fact that p is given. But this is self-defeating: proper assertions are supposed to assert new material. Marking p as a given presupposition solves the problem.

(24) weak(p), p :

The conclusion is that question whether the host in an *only*-sentence is a presupposition, an assertion or an implicature is a false trilemma. It cannot be a proper assertion since it is marked as given: it is however confirmed. It cannot be a proper presupposition since it can be tied to inaccessible material outside the common ground, it is however a weak presupposition. It cannot be an normal implicature since it cannot be cancelled. The status of a given presupposition seems the way out.

The proposal hardwires the impossibility of negation as in (25) taking scope over the statement "Ronald did the shopping": it is given and presupposed. But even if that

statement is thought of as part of the assertion, the assertion would be improper, since it is a partial confirmation of the weakly presupposed statement that Ronald and others went shopping. The antecedent of the weak presupposition is not in the scope of the negation.

(25) It is not the case that only Ronald went shopping. Not only Ronald did the shopping.

The proposal makes the representation of *only*-sentences still simpler, as in (26).

(26) 
$$\alpha(c), weak(x, \alpha(c+x)) : \forall x(x \not\subseteq c \to \neg \alpha(x))$$

Notice that this version deals with the problems noted above. Ronald's shopping becomes entailed by any successful interpretation of the positive and negative case, Ronald's mother in law is excluded from accompanying him in the positive case and weak presupposition allows Susan's presence to be more unexpected than expected in the negated case.

One can continue to be unhappy about the negated case. In the Umbach example, the result of pure mirativity was that the expected Susan was indeed asserted to be the person who was with Ronald when he did the shopping. The combined version merely entails that Ronald went shopping with someone other than himself. This is perhaps right, with it being an implicature that it was Susan due to the setting: the sentence gives an explanation of a change in the Miller household and this points towards Susan.

Compare (27)on this point. Speaker A has noticed that John did not take the danish rolls at an occasion he was offered bagels and danish rolls. Speaker B knows better: he also eats chocolate croissants. B has not entailed that John eats danish rolls when he finishes the first part of his correction.

(27) A: John only eats bagels.B. No, John does not only eat bagels. He also eats chocolate croissants.

It has been noticed in the literature (Horn (1969)) that one can fairly felicitously correct on the prejacent in the positive case, but that this becomes almost inacceptable in the negative case.

(28) Only Ronald did the shopping but I am not sure that he did indeed go.(??) Not only Ronald did the shopping, but I am not sure that Ronald did indeed do the shopping.

The asymmetry can be connected to the analysis. Somebody who makes the positive statement exploits the weak presupposition and makes the exhaustive assertion of the host that goes with it. He can then correct himself on the point of Ronald really doing the shopping. This is quite comparable to saying (29), using the strategy of saying something stronger and then taking back some of it: nobody else went shopping and perhaps not even Ronald.

(29) Everybody came. Except John.

In the negative case, the weak presupposition is not denied but confirmed. So here the speaker would come out as both affirming and denying the weak presupposition and it would not be an instance of the strategy of overstating and taking back some of it employed in the last example. Moreover, it seems unfortunate to first focus on the others (taking Ronald for granted) and then coming back to Ronald and to express one's doubts.

Finally, the real challenge for those who want to maintain that the host is presupposed is to explain why it cannot be cancelled under negation, as is predicted to be possible under almost any view of presupposition. Presuppositions under negation can be easily cancelled as shown by examples like (30).

(30) The king of France is not bald. There is no king of France. What your generalisation captures is exactly nothing.

But (31) is completely out.

(31) ????Not only Ronald did the shopping. He never went near a shop.????It is not the case that only Ronald did the shopping. He never went near a shop.

An explanation of this impossibility should show that local accommodation in the scope of the negation is not possible for the non-exhaustive version of "Ronald did the shopping". In the view of Van der Sandt, cancellation under negation is local accommodation under the negation. For "Ronald did the shopping" there are two possibilities. Either it resolves to the same antecedent as the weak presupposition "Ronald and others did the shopping". In that case, it cannot be locally accommodated under the negation. The other possibility is that "Ronald and others did the shopping" finds a weak antecedent in a context originating from an accessible context C of *only*. In that case, the proper accommodation site for "Ronald did the shopping" is C, again well outside the local context of the negation. In this perspective, the fact that the weak presupposition of *only* entails the prejacent is responsible for the absence of accommodation of the prejacent under negation.

# 4 Context-sensitivity of "Only"

Low quantity mirativity is a label that hides considerable complexities. To be surprised at a low quantity one needs: a set of quantities for comparison, an ordering over them and an orientation. Before a quantity was a set in a set of sets ordered by inclusion and the orientation was from small to large.

But quantities can be objects, weights, chunks of matter, sizes, numbers, professions, propositions and other things, with an order and orientation derived from the topic question, the goal behind it and the elements themselves.

(32) is ambiguous<sup>5</sup> as can be seen by the utterances it may correct.

<sup>&</sup>lt;sup>5</sup>Notice that this example is fine in English but translates badly into Dutch or German.

(33) Seven boys can lift this piano./20 boys can lift this piano.No, only 12 boys can lift the piano.

If one corrects on "seven boys", the question is "how many boys can lift this piano" and one denies that the answer "seven boys" is correct. The true answers form an interval  $[n, \omega]$  of the natural numbers. The smaller cardinalities 1...11 are denied by the exhaustive interpretation. When "20 boys" is corrected, the question must be different: if 7 or 12 boys will do, also 20 boys will do. The question in this setting is "what is the least number of boys that can lift the piano". The set of numbers that give a true answer is now just  $\{n\}$  and the contribution of *only* is limited to the negation of the expectation that is normally —but not here— entailed by the exhaustive interpretation.

The following examples show that the ordering for the interpretation can derive from non-logical and non-mathematical factors.

(34) Only Bill is in Paris.

Assume Bill is there on a business trip, Bill is the best salesman in the company, but his boss the best negotiator and Bill is there for important negotiations. The issue addressed is whether there is a good negotation team and only Bill is less good than could be expected. If one changes the setting to a sales visit and the issue to whether the company has sent the right team, the use of (34) will become inappropriate.

What seem to be going on here is some mapping from the possible answers to the quality of the team for the job they are supposed to do. Adding the boss to the negotiation team would make it better. Adding the boss to the sales team would not make much difference.

One way of thinking about cases like this would be as another question hiding behind the official question "who is in Paris?". Something like: "how good is our company team in Paris for the negotiations?" This is the question resolution mechanism discussed by Ginzburg (1995).

Something similar is going on in the following example. Suppose A has organised a voluntary question hour before the test for his course. He now reports (35).

(35) Only John showed up.

He may in fact be disappointed about the number of students who showed up without the fact that John was the exception having any special role in his expectations. He expected 5 students to show up. *John* is just a special way of answering the question with *one*.

Mechanisms of question resolution and domain restriction as part of question resolution have an important part to play. The structure of the set of possible answers to the question determines the meaning of exhaustivity (the denial of the answers not entailed by the host) and so influences the meaning of an *only*-sentence. In the mirative theory of *only* this part of the account of *only*-sentences is not related to *only* as such: it belongs to the explanation of scalar implicatures and other exhaustivity effects.

<sup>(32)</sup> A. 20 boys can lift the piano.

B. ?Slechts/alleen/maar 12 jongens kunnen de piano optillen.

B. ? Nur 12 Jungen koennen das Klavier aufheben.

# 5 Only if

The assumption that the semantic function of *only* is to express low quantity mirativity on top of the semantics of the host runs into trouble with a famous use of *only* in logic: the *only if* ... *then*-connective normally claimed to mean to reverse of the connective *if then*.

(36) if p then q:  $p \rightarrow q$ only if p then q:  $q \rightarrow p$ 

It is directly clear that this should be an exception to the view on *only* developed in this paper and to all other views that hold that the host is entailed, presupposed, implicated or otherwise true if the *only*-sentence is. The logical view makes things easy:  $q \rightarrow p$  just does not entail  $p \rightarrow q$ , so the *only*-sentence can be true without the host being true.

One may perhaps think for a brief moment that this is an artefact of the logical tradition: one has been trained to understand it the logician's way. But this is not plausible, since there are similar ways of connecting material that have the same property and that play no role in logic.

(37) John visits Mary on Sundays. In Paris, John drinks wine. When it rains, John takes an umbrella.

The most accessible interpretations of these sentences is as a soft universal quantification: this is what John does on a Sunday, this is what he takes for his drink in Paris (at his meals perhaps), this is what he does when it rains. Compare these with the following cases.

(38) John visits Mary only on Sundays.Only in Paris, John drinks wine.Only when it rains, John takes an umbrella.

Here clearly, the soft universal reading is not present. John may visit Mary only very rarely on a Sunday. It may have been a single time during many long visits to Paris that John took some wine and the occasions on which it rained and John took an umbrella may be few in comparison with the cases in which he went into the rain without one. So from a linguistic perspective, the problem of *only if* arises at other places and it cannot be an artefact of logic, in which sentences such as these are rarely discussed.

These other cases turn out to give the key to the solution to the problem with *only if*: it is possible to set up the context so that the universal quantification becomes an existential one, as in (39).

(39) A. John never visits Mary on a Sunday.B. Well, he does visit Mary on Sundays. Only not very often.

A. John never drinks wine in Paris.B. Well, he does drink wine in Paris. But he also has beer when he is there.

A. John never takes an umbrella.B. Well, when it rains, John takes an umbrella. But not always.

And another way (40) of forcing these interpretations.

(40) A. When does John visit Mary?B. He visits Mary on Sundays. Only not very often.

A. When does John drink wine?B. He drinks wine in Paris. But he also has beer when he is there.

A. When does John take an umbrella?

B. When it rains, John takes an umbrella. But not always.

And this is precisely what is needed. The view on *only* in this paper was given as follows.

- 1. The semantic contribution of *only* is only low quantity mirativity: less than expected.
- 2. Other aspects —in particular exhaustivity— are an effect of "focus": the host has to be interpreted as the exhaustive answer to its topic question.
- 3. Only forces the host to have that interpretation.

According to (3), *only* forces an exhaustive interpretation on these examples as in (38) as an answer to a question as in (40). The pattern is the same when one uses the corresponding *if*...*then*-sentences.

(41) John visits Mary, if it is Sunday.John drinks wine, if he is Paris.If it rains, John takes an umbrella.

Applying this to a well-known example (42), it gives three things.

(42) Only if you behave, you will get a cookie.

The first is an expectation that indifferent as well as proper behaviour will lead to a cookie. The expectation is quite likely founded in the behaviour of the adressee. The expectation is denied.

"if you behave" should be an exhaustive answer to the topic question, here: "when will you get a cookie?". It is not completely obvious what exhaustivity means in this context but this may be safely left for future research<sup>6</sup>.

But property (3) is really the important one. It forces an interpretation on *only if*-sentences where the host is an exhaustive answer to the question "when does the consequent hold". And this gives —as shown above— an existential reading: there are cases in which the condition and the consequent both hold.

Applied to our example, it is clear that it does not amount to a promise. But there is hope: some lines of proper conduct will lead to a cookie.

Normal *if...then* sentences are universal, just like the examples in (39). They typically answer questions of the form (43).

(43) What happens, if .... What follows, if ....

And the causal and logical order are such that this assigns universal force. If the answer is based on causality or logic, it will invariably (or ceteris paribus) follow from the antecedent.

Unfortunately, in the case of (42) it does not suffice to add an earlier *never*sentence or to make a *when*-question explicit to get the host to have this reading. B's contribution cannot —or only with the greatest difficulty— be interpreted existentially, i.e. without given it the force of an a conditional promise.

- (44) A. When will I get a cookie?
  - B. If you behave, you will get a cookie.
  - A. So I will not get a cookie under any circumstance?
  - B. If you behave, you will get a cookie.

In fact, this prompted Saeboe (1986) to the conclusion that the host of *only if*-sentences must contain a hidden *can*. I prefer a different formulation of this insight: *can* must be inserted when *only* is removed since just removing *only* makes the existential reading non accessible. The *can* is not a hidden operator, but an (obligatory) marker of the (modal) existential interpretation of the conditional (a disambiguating device).

There are two kinds of *if*...*then*-sentences: one where the condition describes many (possible) events and one in which the condition describes a single possible event. The existential reading is different in both cases: with many events, the conditional states that some of these events are accompanied by the consequent, with the singular event that it may be accompanied by the consequent. For a condition of many events, the existential reading can be forced by inserting *sometimes* (an optional marker). *Only* also forces this reading. But there are quite a number of contexts (bare plural, bare singulars,

<sup>&</sup>lt;sup>6</sup>The intuitive generalisation of the semantics given earlier on is not bad however: the possible lines of conduct which are not special cases of "behave" do not have the property that a cookie will be awarded at the end of them. But this lacks logical sophistication.
unanchored past, omitted arguments etc.) in which an existential interpretation does not need to be overtly marked and it is unsurprising to find another cases of the same phenomenon, i.e. the case that the conditional is the answer to a *when*-question or the case that it denies a *never*-statement. The existential reading on conditionals in which the condition describes a single event can be forced by modals like *can* or by *only*. But the possibility interpretation cannot remain unmarked, since it is not the default: that is the statement that the consequent will happen or hold when the condition happens or holds. So what happens in a singular event conditional hosting *only* is that when *only* is removed, it reverts to the non-existential default interpretation.

The counterargument to the view of this paper based on *only if* turns out on a closer look to be more an argument in its favour. The disambiguation of the host by the presence of *only* is even more spectacular than in the case of *if*...*then*-sentences than in the case of simple sentences like "only Ronald did the shopping". This reading of "if"-sentences has been noticed before by Saeboe (1986) and Kratzer (1979). The latter discusses the case that the *if*-clause associates with an adverbial like *sometimes*, and this gives the same reading. The presence of an existential adverbial is however not necessary for the reading, as I hope to have shown.

## 6 Conclusion

The considerations above make it possible to avoid association with focus, even in the minimal sense of Rooth (1992). *Only* expresses that an exhaustive answers to a *wh*-question falls short of the expectation. The meaning can be characterised in terms of that question and its answer. Since the host normally has the intonation of such an answer, stress is on the element that corresponds with the *wh*-phrase.

The easiest way to deal with the combination of the semantics of *only* and its host is by means of anaphora. *Only* would presuppose the semantics of the host as an exhaustive answer to a *wh*-question and would pick up both the question and its answer as antecedents, with the additional requirement that if the occurrence is non-elliptical, the antecedents belong to the same clause as *only*. The weak presupposition and its partial negation are derived by structure sharing.

The other mirative particles become easier with the machinery of this paper.

(45) Bill is still in Paris. weak(Lebp, e < t) : Pbt

Bill is weakly presupposed to have left Paris before the time of utterance and asserted to be there nonetheless. His being in Paris at a moment of time before his supposed leaving is a lexical presupposition of "leave" and not indicated.

Bill is weakly presupposed to have left Paris before the time of utterance and is asserted to be there nonetheless. His being in Paris at a moment of time before his supposed leaving is a lexical presupposition of *leave* and not indicated. The fact that this presupposition is not weak can be accounted for by making it a part of the lexical specification of *still*, as proposed by Loebner (1989), Krifka (2000) a.o.

Another option is the hypothesis that lexical presuppositions of weak presuppositions are projected as normal presuppositions of the trigger of the weak presupposition. Within the system of developing presuppositions in auxiliary DRSs at the site of the trigger that is adopted in van der Sandt (1992), the development of a lexical presupposition of the weak presupposition generated by an occurrence of *still* takes place at the same position as the development of the weak presupposition. Resolution or accommodation of the lexical presupposition of *leave* would then have to take place before the treatment of the weak trigger and be confined to the accessibility path of *still*. In (45) this places the information that Bill is in Paris at the time of his weakly presupposed departure in the main DRS.

Notice that in the second option, the ideal of analysing (42) as the conjunction of mirativity and the semantics of the host can be maintained. This is a good reason for adopting this second option. In (46), the first formula, would reduce to the second.

- (46) weak(at(t'e), Pbt' : Lebp, e < t) : Pbtat(t'e), Pbt', weak(Lebp, e < t) : Pbt
- (47) Bill is already in Paris. weak(e:Abp, e > t):Pbt

Bill is weakly presupposed to arrive in Paris after the moment of speaking, but is there nonetheless. His not being in Paris before the supposed arrival is a lexical presupposition of *arrive* and not indicated here. The same remark as above applies to this lexical presupposition.

(48) Even Bill is in Paris.  $weak(Px, \neg Pb) : Pb$ 

Bill is in Paris while being weakly presupposed to be not there unlike others. It remains to be seen to what extent the usual analysis in terms of scales can indeed be avoided in this way.

These three are simpler than *only*, since all that the particle does is add a weak presupposition to the statement, a weak presupposition that conflicts with the statement itself. They therefore conform to the ideal particle semantics where the particle makes an independent addition to the semantics of the host. In the case of "only" that does not apply, because the statement itself is not a correction of the weak presupposition it conflicts with (the statement follows from the weak presupposition), though its exhaustive interpretation is. The fact that "only" disambiguates its host makes its semantics seem to fall short of the ideal particle semantics where the particle just adds another conjunct. The conclusions of this paper can be listed as follows.

- 1. Mirativity is best analysed as denying a weak presupposition. This makes the mirative particles very similar to adversative particles, different only in the fact that where adversative particles weakly presuppose the falsity of the host, the mirative particles in addition presuppose a different value for some entity determined by the host: a moment of time, an object or a quantity.
- 2. *Only* expresses low quantity mirativity and thereby imposes an exhaustive interpretation on its host with respect to the definition of the relevant quantity.

- 3. In the case of *only if*, the quantity question becomes *under which circumstances p*?. This imposes an existential reading on the conditional and makes *only* a marker of the existential reading of the conditional.
- 4. The status of the host (the prejacent) in *only*-sentences is that of a "given presupposition". It is always weakly presupposed, but not necessarily part of the common ground yet. If it is not, it will be accommodated at a position determined by the weak presupposition. This status comes about by the mirative weak presupposition that makes the host weakly presupposed and makes it impossible to interpret the host as giving new information. In this respect, it is like a confirmation. Given presuppositions are not presuppositions, weak presuppositions, implicatures or assertions and one of the two sources of confusion about *only* is that researchers have tried to choose between assertion, presupposition and implicature.
- 5. The other source of confusion is the very close relationship between the denial of part of the weak presupposition and exhaustivity. Exhaustivity entails the partial denial of the weak presupposition, but it is stronger, even though, when the weak presupposition is sufficiently vague (e.g. John and others) its denial can amount to exhaustivity. It would seem that the possible implicature that the weak presupposition is true in the case of negative *only*-sentences is important and cannot be reduced to exhaustivity.
- 6. Presuppositions of weak presuppositions are normal presuppositions. This would appear to be a consequence of the assumptions made in Gazdar (1978) and van der Sandt (1992) and solves the technical problem of capturing the presupposition of *still p* and *already p* (p was the case until its weakly presupposed end, p was false until its weakly presupposed start) in a natural way. The lexical specification of *still* and *already* becomes much simpler.

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