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Questions and Focus in Bulgarian

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In partial fulfillment of the requirements
For the PhD degree in Linguistics

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Faculty of Arts
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LIST OF ABBREVIATIONS

[...] _F	Focused element
[+EPP]	An element has an EPP feature (needs an overt element in its specifier position)
[_i wh]	Interpretable wh-feature
[_u wh]	Uninterpretable wh-feature
1p.	1 st person
2p.	2 nd person
3p.	3 rd person
Acc.	Accusative (case)
Adj.	Adjunct
Alt.	Alternative (reading)
Aor.	Aorist
Aux.	Auxiliary verb
C	Complementizer
CG	Common Ground
cl.	Clitic
Dat.	Dative (case)
Def.	Definite (with a determiner)
DO	Direct Object
EA	External Animate (argument)
EI	External Inanimate (argument)
Fem.	Feminine (gender)
Foc	Focus
IA	Internal Animate (argument)
II	Internal Inanimate (argument)
IO	Indirect Object
LF	Logical Form
Masc.	Masculine (gender)
MWhF	Multiple <i>Wh</i> -Fronting
Neg	Negation
Nom.	Nominative (case)
OT	Optimality Theory

p.p.	Past participle
Past	Past tense
PCC	Person-Case Constraint
PF	Phonological Form
Pl.	Plural
PMC	Principle of Minimal Compliance
Pres.	Present tense
Q	Question operator
Q _F	Focus-sensitive question operator
Refl.	Reflexive
RM	Reordering Merger
SC	Serbo-Croatian
Sg.	Singular
Sub.	Particle introducing a subordinate clause (DA)
Subj.	Subordinate verb form
T	Tense
Top	Topic
UG	Universal Grammar
<i>y/n</i>	<i>Yes/no</i> (question)

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CHAPTER 1

INTRODUCTION

1. General overview

This dissertation explores a number of topics related to the syntax and semantics of questions in Bulgarian. The syntax of Bulgarian interrogatives has been an object of continuous exploration since the 1980s. What has attracted syntacticians' interest is that Bulgarian is among the languages that need to front all *wh*-elements in a multiple *wh*-question. Many linguists have put forward different hypotheses with regards to the position and order of *wh*-elements when fronted to the beginning of the clause. In contrast, to the best of my knowledge, the semantics of polar questions in Bulgarian has not been studied in any great depth by generative linguists.

The present work proposes a unified approach to the study of interrogatives in Bulgarian based on experimental data on *wh*- and *yes/no* (henceforth *y/n* questions) questions and on the semantic analysis of polar questions. It investigates the hierarchy of *wh*-words, the syntactic structure of interrogatives, the semantics of polar questions and the connection between focus and questions in general.

Two main claims are made in this dissertation. First, there exists a unified syntactic derivation for constituent and polar interrogatives in Bulgarian based on a structure that involves a clause-internal focus projection situated below C and above the IP. In constituent questions, all *wh*-phrases are initially moved to this focus projection and only later can the highest animate *wh*-element raise to SpecCP. In addition, given that there are two positions available for *wh*-fronting, the *wh*-cluster can be split after the first *wh*-word. In polar questions, the interrogative particle *li* heads the focus projection, whereas the interrogative word *dali* is an overt interrogative complementizer.

The second major claim of this dissertation is that a profound relation between interrogatives and focus is observed in both – *wh*- and *y/n* questions. In constituent questions, such a relation is reflected in the proposal that *wh*-words are focused in their nature and as such, they move to the clause-internal focal projection. The generally assumed raising of *wh*-elements to SpecCP is only a second step in *wh*-fronting in Bulgarian. Thus, traditional

generative views on the syntax of multiple *wh*-interrogatives must be revised. In addition, the present research supports the idea that there exists a strong animacy-based hierarchy of *wh*-words in Bulgarian. This hierarchy is syntactically expressed by the existence of two separate positions to which *wh*-phrases are fronted. While inanimate *wh*-words raise to SpecFoc(us)P, only animate ones are allowed to further move to SpecCP¹. With regards to polar questions, the relation between focus and interrogation is detected through their focus-dependent semantics. The strong influence of focus on polar questions triggers the possibility of different types of implicatures, the three-way ambiguous interpretation of negative questions and the lack of alternative reading in alternative *y/n* questions formed with the interrogative particle *li*.

Overall, this dissertation presents a case in point in Bulgarian, a Slavic language which exhibits multiple *wh*-fronting and polar questions with interrogative particles. However, as it supports that there is a robust influence of focus on questions, it poses the question as to whether and how such a connection is observed in other languages, and whether such a relation is a general property of natural language.

2. Basic Assumptions

The present study is written within the Minimalist framework, as proposed initially by Chomsky (1995) and further developed in his subsequent works, in particular Chomsky (1998, 2001, 2004). Interrogative sentences are analyzed as involving the presence of an interrogative complementizer. Such a complementizer clause-types the sentence and bears an uninterpretable interrogative feature [_u*wh*]. I assume a differentiation between uninterpretable and interpretable features based on Chomsky (1995). Interpretable features are understood as carrying instructions to either PF or LF. Uninterpretable ones are seen as purely formal, with no effect on the interfaces. An uninterpretable feature thus requires its saturation (checking, valuation, deletion) by an equivalent interpretable one. Thus, an uninterpretable [_u*wh*] feature on C⁰ must be checked by an interpretable [_i*wh*] one, borne by the interrogative elements. The checking of the interrogative feature on C⁰ can be accomplished via two operations: *Move* and *Agree*. I assume Chomsky's (1995) definition of *Move* as an operation driven by the need to check an uninterpretable feature that is situated on a syntactic head and attracts features lower

¹ The relationship between questions and focus has been long noticed; e.g. see Chomsky 1965, 1971, 2004; Rochemont 1986, Rochemont and Culicover 1990 a.o. for relevant ideas.

in the tree, thereby forcing them to move to a position that is local to it. I follow Chomsky's (2001) definition of *Agree* as a relation between α and β , where α has interpretable inflectional features and β has uninterpretable ones, which delete under *Agree*. The $[_uwh]$ feature on C^0 is checked via *Move* in languages where C^0 has an [+EPP] feature². A language of this type needs to front the *wh*-element(s) from the derivation to the specifier position of C^0 . A language-specific property of C^0 would be its ability to attract one or all³ of the *wh*-words contained within the derivation. The $[_uwh]$ feature on C^0 is checked via the operation *Agree* in languages where C does not possess an [+EPP] feature. In such a case, the uninterpretable *wh*-feature is deleted through agreement with a matching interpretable feature lower in the tree and the *wh*-word remains *in situ*.

Wh-movement in the Minimalist framework is seen as either overt (syntactic) or covert (after Spell-out)⁴. Overt *wh*-movement is observed in languages where C^0 has an [+EPP] feature and needs an overt element in its specifier to check it (e.g. English, Bulgarian). Covert *wh*-movement, for its part, is instantiated in languages where the $[_uwh]$ feature is checked outside of the syntactic part of the derivation (Japanese, Chinese)⁵. In languages of this type *wh*-words undergo raising to SpecCP only after the derivation has reached the Spell-out point (after the representation has been sent to PF) in order to obtain their scope and correct interpretation.

Wh-movement in this model is executed in a successive cyclic manner. That is to say that *wh*-words are moved from their base-generated position to the front, passing through all SpecCPs on their way, i.e. passing through the edges of all the phases they have to cross in order to reach the highest SpecCP⁶. A crucial property of *wh*-movement is that it has to obey

² In earlier works where the [+EPP] feature was not introduced, that would be equivalent to a strong uninterpretable $[_uwh]$ feature.

³ Rudin (1988) classifies Bulgarian among the languages where C^0 is of the type attract-all. However, as the present study shows, this is not the case, as C requires only one (or even none) element to check its interrogative feature. The study on Bulgarian thus poses the question whether other languages that have been considered to have C^0 of the attract-all type, are in fact like Bulgarian. If this is the case, C^0 does not need to have language-specific properties; i.e. to be of the type attracting only one or all *wh*-elements. Such an outcome is desirable from a minimalist point of view, as it reduces the variation of C^0 to only having or not an [+EPP] feature.

⁴ A third, 'mixed' type of languages, where *wh*-movement is optional (e.g. French) is also discussed in the literature. For details and possible analysis, see Mathieu (2004), among others. For a comparison between *wh*-in situ and *wh*-ex-situ languages and a discussion on partial *wh*-movement, see Sabel (2000).

⁵ Pesetsky (1987) offers an analysis of *wh*-in situ languages. See also Pesetsky (1994) for an approach distinguishing phrasal from feature movement.

⁶ For an approach to successive cyclicity based on language-specific characteristics, rather than on *wh*-features, see Franselow and Mahajan (2000). For certain problems related to interpretability and properties of the phase, see Legate (2003). For a general discussion on cyclicity, see Fox and Pesetsky (2005) and Lasnik (2006), among others.

the Superiority restriction. I assume Chomsky's (1973) original definition of Superiority, presented in (1) below:

(1) **Superiority, Chomsky (1973)**⁷:

No rule can involve X, Y in the structure ... X ... [... Z ... WYV ...] where the rule applies ambiguously to Z and Y, and Z is superior to Y. The category A is superior to the category B if every major category dominating A dominates B as well but not conversely.

This initial version of the Superiority restriction can be seen in minimalist terms as a local requirement on the operation *Move*. In other words, obeying Superiority requires the closest matching interpretable feature to check the uninterpretable one.

In what refers to Multiple *Wh*-Fronting (MWhF) in Bulgarian, I follow closely Bošković's (1998) proposal on the distinction between two critical operations in MWhF: *Move* and *Attract*. While *Move* is the result of an uninterpretable feature on a higher functional element, *Attract* is the outcome of the need of the lower element to be moved higher in the structure. As a result, *wh*-fronting resulting from the operation *Move* will be subject to the Superiority constraint, whereas the order of the *wh*-elements fronted via *Attract* will be irrelevant to Superiority. What this means is that *wh*-fronting to SpecCP must obey the Superiority constraint, while fronting of *wh*-elements to an internal focus projection due to their focus features disregards such a constraint.

Finally, I assume Chomsky's (2004) idea that T^0 inherits the full complex of its relevant features from the phase head C^0 . Such an inheritance is critical for the syntactic structure proposed, since material situated in the edge of T^0 (SpecTP), is visible for the following phase.

Apart from the syntactic connection between *wh*-movement and focus fronting, the close relation between questions and focus in Bulgarian is also explored through a formal semantic analysis of polar questions. I take on the widely accepted approaches of Hamblin (1973) and Karttunen (1977) where questions are regarded as propositions embedded under the question operator *whether* or under the silent question operator *Q*. Within these views,

⁷ For a view of Superiority as a subcase of weak cross-over, see Williams (1994). For a representational approach to Superiority, see Haider (2000).

questions denote sets of their possible or true answers, respectively. Additionally, positive and negative questions, as well as direct and embedded ones, share the same denotations.

In this work I use the contemporary formal semantics notation of Hamblin's proposal, adopted from Han and Romero (2001). I base my analysis on their proposal from (2001) and their subsequent work in (2004) according to which inverted negation in English triggers the presence of a special type of focus – focus on the polarity, which is expressed by the so-called VERUM operator.

(2) **Negative *y/n* questions without inverted negation**

Does John not drink?

(3) **Negative *y/n* questions with inverted negation**

Doesn't John drink?

The focus on the polarity observed in (3) aims to verify the degree of certainty with which a proposition p (corresponding to the proposition expressed by the interrogative) should be added to the Common Ground (CG). In addition, as noted by Ladusaw (1980) and Ladd (1981), questions with inverted negation, such as the one in (3) are ambiguous in their reading between being a question about p and a question about $\neg p$. What is more, preposed negation forces the existence of an epistemic implicature with opposite polarity to that of the question itself (see also Ladd 1981; Han 1998; Büring and Gunlogson 2000).

I further adopt Rooth's (1985, 1992, 1995) theory on focus, where focus evokes sets of alternatives that are contextually restricted. In other words, the focus semantic value of a focused phrase is a set of contextually salient elements of the same semantic type as the focused element. Importantly, with respect to the semantics of *y/n* questions in Bulgarian, I assume that focus on the polarity evokes sets of alternatives related to the certainty with which a given proposition should be added to the CG, as it does in English. In contrast, when focus is on another element in the clause, I presume that it evokes alternatives (sets of propositions), as proposed by Rooth (1992, 1995).

I closely follow Selkirk's (1995) view on focus and focus feature percolation. Within this approach, a focus feature on the head or on the argument can percolate to the top of the phrase. Building on her view, I take narrow focus to be present when focus features are

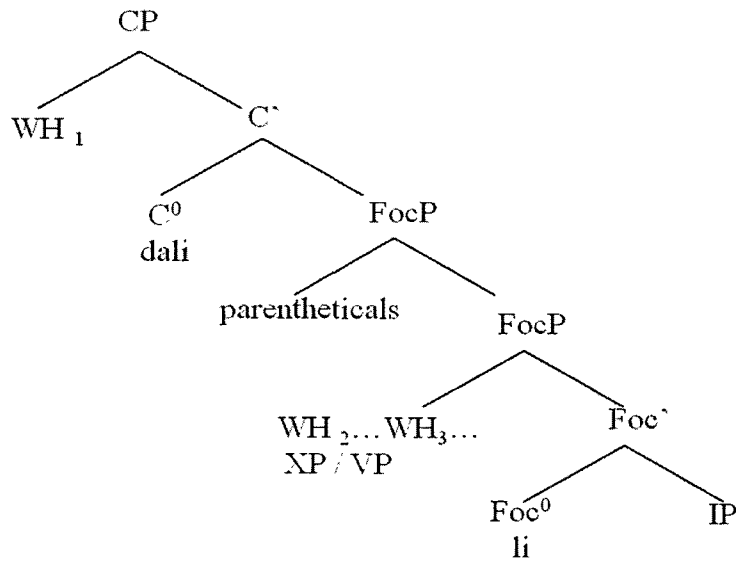
interpreted at the lower level. In contrast, broad focus is observed when focus features are interpreted at the higher, phrase level.

Lastly, following Kiss (1988) and inspired by Selkirk (2002) and Kratzer (2004) in particular, I assume that there exists a difference when focus is used to introduce new information and when it is used contrastively. Through a series of phonological tests, Selkirk (2002) shows that these two well-known uses of focus do not share the same phonological properties. In addition, Kratzer (2004) argues that while informational focus contributes to the truth-conditional status of a sentence, contrastive focus involves presuppositions with regards to the expressed proposition. Such a discrimination between these two uses of focus is very important for the semantic analysis of polar questions in Bulgarian, as it allows establishing the difference between the cases when the focused element is the verb and when the focused element is one of its arguments. In this respect focused *y/n* questions in Bulgarian present a new argument in favour of two kinds within the long-standing debate on whether informational and contrastive focus must be distinguished or not.

3. Dissertation outline

From a syntactic perspective, the most important foundations of this study are the works by Chomsky (1995, 1998, 2001) and works within this tradition, which are the theoretical basis and background for the present dissertation. Within the minimalist framework, **CHAPTER 2** presents and discusses some relevant background studies on the syntactic structure of questions in Bulgarian and proposes a novel unified syntactic analysis of *wh*- and *y/n* interrogatives. The proposed structure is presented in (4) below.

(4) Syntactic structure of Bulgarian interrogatives



The structure presented in (4) is a combination of the proposals by Izvorski (1995) and Lambova (2001, 2004). It assumes the existence of a clause-internal focus projection headed by the interrogative particle *li* and the movement of all *wh*-elements to the specifier of such a projection. It also assumes a second landing site for *wh*-phrases.

The availability of two positions to which *wh*-elements can be fronted is supported by the data collected in the experimental part of the present study and offers two major advantages. First, it allows animate and inanimate *wh*-elements to front to two different positions, which is the syntactic expression of a lexical or pragmatic animacy hierarchy among *wh*-elements. Second, the availability of two landing sites for *wh*-fronting licenses the split of the *wh*-cluster.

Still, another advantage of the structure illustrated in (4) is the fact that the two interrogative words, *dali* and *li*, do not share the same syntactic position. This reflects their different characteristics. While *dali* is a true interrogative complementizer, that takes scope over the whole clause by heading CP, *li* is a focal particle in a lower position in the clause, and only has scope over the elements that are focused. The structure in (4) also accounts for the fact that only *li* can appear with *wh*-words, in contrast to *dali*.

The dissertation can be divided into two main parts: Chapters 3 and 4 are dedicated mainly to the syntactic structure of *wh*-questions and deal with the order of *wh*-elements in a multiple *wh*-question. Chapter 5 is dedicated to the formal semantic analysis of *y/n* questions.

Chapters 3 and 4 present two sentence judgment experiments which aim to establish the preferred order of *wh*-elements at the beginning of the clause in Bulgarian and bring evidence in favour of the syntactic structure presented in (4). The experimental part of this study is inspired largely by the main ideas in works by Rudin (1986, 1988) and Billings and Rudin (1996) who establish a correlation between animacy, discourse prominence and the order of *wh*-elements at the beginning of the interrogative. Overall, these studies assume that all *wh*-elements raise to SpecCP and propose that animate *wh*-elements tend to precede non-animate ones and that *wh*-elements raising from SpecIP - as a position related to discourse-prominence - must precede the rest of the interrogative words.

CHAPTER 3 introduces the first experimental study, a paper-and-pencil sentence judgment task, addressing the long-standing debate on the order of *wh*-arguments in a multiple *wh*-question. Participants were asked to rate multiple *wh*-questions on a scale of 1(unacceptable) to 4 (fully acceptable) and to provide a modification or an adequate context for unacceptable sentences, such that they become fully acceptable. Target sentences were organized into three main groups depending on the combination of *wh*-elements they presented:

A. Items where the two *wh*-expressions were an external and an internal argument respectively (*Who watches what on TV?*)

B. Items where both *wh*-expressions were internal arguments (*What did you give to whom?*); and

C. Items, where the two *wh*-words were an adjunct and an argument respectively (*Who goes where for the vacation?*).

The above groups were further divided into subgroups depending on the animacy nature of the *wh*-words. The possible combinations were animate + inanimate, two animate or two inanimate *wh*-words. In addition, each condition had two versions: one obeying and one violating the Superiority restriction. The overall results of the first experiment showed that the Superiority restriction is a valid syntactic constraint in Bulgarian. However, the data collected proved that such a constraint is not sufficient to determine the correct order of interrogative pronouns at the beginning of the sentence. Data collected in experiment 1 supported Billing and Rudin's (1996) idea that there exists an animacy-based hierarchy among *wh*-words in Bulgarian. It also showed that such a hierarchy is even more robust with internal arguments. Data collected through the filler sentences in the first experiment supported the syntactic

structure for interrogatives proposed in (4), as sentences that should count as acceptable under the traditional generative analysis of multiple *wh*-questions were not rated high enough. An example is given in (5) below.

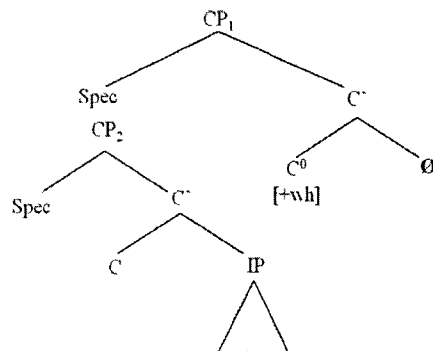
(5) **Za** **Pariž** *koga trāgva Ivan li?*

For Paris when leaves Ivan Q

‘Speaking of Paris, you want to know when Ivan leaves for there.’

The standard generative analysis of *wh*-questions predicts that the structure presented in (5) should receive a higher rating, perhaps almost as high as that of acceptable control clauses that were used in the experiment (i.e. *Kāde gleda poslednija film na Woody Allen - Where did you watch the last movie by Woody Allen?*) However, (5) was rated significantly differently from the acceptable control group. Within the standard syntactic approach to *wh*-questions, the example in (5) is easily explained as a *y/n* echo-question formed with *li*. The non-echo part consists of the phrase *to Paris* which is the discourse topic situated above SpecCP. The echo-part is the single *wh*-question (*when does Ivan leave*), SpecCP is occupied by the *wh*-word *when*; the verb, which follows the *wh*-word is in C⁰; and the subject *Ivan* is in SpecIP. The interrogative particle *li* is treated as an interrogative complementizer, which is in C⁰ of the matrix question⁸. The lower acceptance rate of sentences of the type of (5) suggests that this traditional analysis of questions in Bulgarian should be revised. The structure proposed in (4) provides the advantage of having two landing sites for *wh*-fronting: SpecFocP and SpecCP. Thus, at first sight the structure in (5) should not be problematic if one assumes that the whole interrogative is focused. The phrase *to Paris* is situated above SpecCP and the rest is in SpecFocP, headed by *li*. However, the interpretation is a very difficult one to get. In the same

⁸ I assume the following syntactic structure for echo-questions, as proposed by Escandell-Vidal (2002, p. 18):



sentence there is a combination between a topicalized element and a complete focused clause, which is particularly difficult to process. The difficulty of this combination is not predicted by the commonly assumed structure of questions in Bulgarian and the fact that the interrogative is a focused clause is not reflected either. Therefore, I interpret the lower acceptance rate of (5) to point to the fact that the structure in (4) is suitable for the analysis of questions in Bulgarian.

Another problematic structure for the traditional analysis of *wh*-questions proved to be the filler type combining a *wh*-element, a focused phrase, and the interrogative particle *li*, such as the one presented in (6) below.

- (6) *Koga trāgva Ivan li za Pariž?*
 When leaves Ivan Q for Paris
 ‘When does Ivan leave for Paris?’

[_{CP} Koga [_C trāgva [_{FocP} Ivan [_{Foc} li [_{IP} ... [_{VP} ...za Pariž...]]]]]]

The standard analysis of *wh*-questions, together with the assumption that there is a clause-internal focus projection, predicts that the sentence in (6) should be acceptable. The interrogative word has raised to SpecCP, the verb is in C, the subject is focused and is situated in SpecFocP, which is headed by the interrogative particle and focus marker *li*.

Contrary to what the traditional approach would predict, sentences of this type were rated significantly lower than acceptable control clauses. I interpret the low rating of fillers of this type to support the view that the focused phrase and the *wh*-word compete for the SpecFocP position and that the verb does not need to raise to C in Bulgarian questions.

Lastly, the data collected through the first experiment had an unanticipated finding. Based on the studies proposed for Bulgarian to this point and on the overall results supporting the idea that the Superiority restriction is an important constraint for ordering the *wh*-elements in Bulgarian, the prediction was that the combination of two internal inanimate arguments should obey Superiority. However, the data collected suggested that the combination of two internal inanimate arguments is intangible to the Superiority restriction, as sentences violating it were rated significantly higher than those obeying it. Such a surprising finding is best explained if it is assumed that only animate *wh*-words raise to SpecCP. As a result, the seemingly surprising outcome accounts for all the characteristics of Bulgarian questions

observed through the experimental data. On the one hand, it represents the syntactic expression of the animacy-based hierarchy of *wh*-words, showing that only animate *wh*-elements raise to SpecCP. On the other hand, it supports once again the idea that there are two different landing sites for *wh*-movement in multiple *wh*-questions in Bulgarian. In other words, the seemingly unexpected results strongly support that all *wh*-elements should first move to SpecFocP to satisfy their focus feature, and only after that animate *wh*-words raise to SpecCP. Overall, the results from the first experiment were very consistent and, once again, strongly supported the syntactic structure and derivation proposed as a working hypothesis.

CHAPTER 4 of this dissertation presents a second, revised experiment which additionally addresses the problem of whether the length of the *wh*-word impacts on its position and whether the nominative *wh*-form *koj* (who) has a special status among interrogative forms. The modifications of the experiment were partially inspired by the work of Pesetsky (2000) who suggests that the nominative *wh*-pronoun standing for the animate agent *koj*, ‘who’, has a special status among *wh*-elements and always needs to be placed first in the *wh*-cluster. As pointed out by Billings and Rudin (1996), in colloquial style the substitution of *kogo*, ‘whom’, by *koj*, ‘who’, is common. Although such a replacement is not prescriptively acceptable, it is frequently observed in spoken language. As a result, in experiment 2 the form *kogo*, ‘whom’, was substituted by *koj*, ‘who’, in half of the target sentences where it was used. In addition, the target sentences were simplified and an introductory context clause was added, so that the two variants of each item could be interpreted within the same context. An example is provided in (7) below.

(7) **External inanimate & internal animate.**

(The example in *b* illustrates the substitution of *whom* by *who*.)

Context: *Speak slowly. What happened at the playground?*

a) *Kakvo_i kogo_j t_i e udarilo t_j po vreme na mača?*
 What whom Aux. hit on time of game
 ‘What hit whom during the game?’

b) *Kakvo_i koj_j t_i e udarilo t_j po vreme na mača?*
 What who Aux. hit on time of game

Declarative: ‘A ball hit Peter.’

As illustrated in the sentences in (7), the *wh*-form *kogo* (whom) was substituted with its nominative counterpart *koj* (who) in half of the cases when such a substitution was possible. The two versions of the condition – the one with and the one without the substitution – were further compared.

Given that *koj*, ‘who’, is the shortest *wh*-word in Bulgarian, an additional condition containing the adjunct *kak*, ‘how’, was added in case the form *koj*, ‘who’, had an exceptional status. The addition aimed to verify whether such a preference could be due to the shortness of the word. The new condition type is illustrated in (8) below.

(8) **Internal animate argument & adjunct – how**

Context: *So, what is the rumor, tell me.*

a') *Kogo_i kak_j sa posreštнали t_i na garata t_j?*
 Whom how Aux. received_{3p.pl.} at station-the
 ‘Who did they receive at the station and how?’

a'') *Ko_ji kak_j sa posreštнали t_i na garata t_j?*
 Whom how Aux. received_{3p.pl.} at station-the

b') *Kak_j kogo_i sa posreštнали t_i na garata t_j?*
 How whom Aux. received_{3p.pl.} at station-the

b'') *Kak_j ko_ji sa posreštнали t_i na garata t_j?*
 How who Aux. received_{3p.pl.} at station-the

The sentences in (8) illustrate the new condition type containing the adjunct *kak*, ‘how’. The *a* examples correspond to the version of the sentences obeying the Superiority restriction. The *b* examples represent the conditions violating Superiority. The variants *a'* and *b'* contain the accusative form of the pronoun *kogo*, ‘whom’, whereas the *a''* and *b''* contain the novel nominative substitute *koj*, ‘who’. The results from comparing the *a'* and *a''* sentences and the *b'* and *b''* sentences did not reveal any significant difference between the Superiority obeying and violating versions.

Overall, the results obtained through experiment 2 were consistent with the ones obtained in experiment 1. Once again, the data revealed that the animacy-based hierarchy among *wh*-elements is a critical factor in the order of interrogative pronouns in Bulgarian. The data collected through the altered sentences in experiment 2 (such as the ones presented in (8) above) showed that the nominative-looking form *koj*, ‘who’, does not have a special status among *wh*-elements, as it behaved similarly to its accusative counterpart. In addition, no direct correlation was observed between the length of the *wh*-form and its positioning. As in experiment 1, the combination of two internal inanimate arguments supported the hypothesis that only animate *wh*-elements raise to SpecCP. Lastly, fillers comparing sentences with and without split *wh*-clusters revealed no significant difference between these two types of sentences. This last finding lends further support to the idea that there are two landing sites for *wh*-fronting.

CHAPTER 5 is dedicated to the semantics of *y/n* questions in Bulgarian and their close relation to focus. This second part of the thesis builds on the works of Han and Romero (1991), and Romero and Han (1994), in combination with the theory of focus proposed by Rooth (1992, 1995). The semantics of focus used is the one proposed by Rooth, that is, a phonological/syntactic/semantic feature on words that creates contextually dependent sets of alternatives. In other words, the denotation of a focused phrase is a contextually salient set of alternatives of the same semantic type as the focused element. Han and Romero examine polar questions in English and argue that in interrogatives with inverted negation there is a focus on the polarity. The two types of questions differ in their interpretation and in their possible answers, as shown in (9) and (10) below.

(9) **English polar questions with non-inverted negation:**

Did John not drink coffee or tea?

a) Yes, John did not drink coffee or tea.

No, he did drink coffee or tea.

(*y/n* reading)

b) John did not drink coffee.

John did not drink tea.

(alternative reading)

(10) **English polar questions with inverted negation:**

Didn't John drink coffee or tea?

a) No, John did not drink coffee or tea.

Right, he did drink coffee or tea.

(*y/n* reading)

b) # John did not drink coffee.

John did not drink tea.

(alternative reading)

Han and Romero (2001, 2004) argue that the difference between polar interrogatives with and without inverted negation is due to the presence of focus on the polarity when negation is inverted, as in (10). Three main characteristics of polar interrogatives with inverted negation are observed.

- (i) Lack of alternative readings in alternative *y/n*-questions;
- (ii) Epistemic implicature with polarity opposite to that of the question;
- (iii) Partition of the logical space of the type:

FOR SURE-CG_x p

¬ FOR SURE-CG_x p

In Han and Romero's view, focus on the polarity is represented by the VERUM operator. Such an operator changes the generally assumed semantics for *y/n* questions which states that a polar interrogative denotes the set of its possible or true answers. Instead, a question containing focus on the polarity aims to verify the level of certainty of the interlocutor, i.e. whether the proposition corresponding to the question should be for sure added to the common ground. As a result, the presence of focus on the polarity creates an unbalanced partition of the logical space.

Inspired by this analysis of negative questions with inverted negations in English, in chapter 5 I develop a novel formal semantic analysis of *y/n* questions in Bulgarian. I show that *dali*-questions parallel English polar questions to a high degree, in that they exhibit focus on the polarity when negation is inverted and that they do not typically exhibit focus. In contrast, *li*-questions always contain focus, which is shown through their lack of alternative readings. However, questions with *li* do not necessarily involve focus on the polarity every time negation is preposed. In order for focus on the polarity to be present, it needs an overt functional element in T that can bear focus features and be stressed. Immediate preposing of

such an element (negation, auxiliaries that are not clitics, modal verbs that take TP complements) in front of *li* is the necessary condition for such a functional element to be interpreted as focused. If, in contrast, *li* is situated at the end of the clause, only a neutral interpretation is possible, independently of the word order in the sentence. Thus, I argue that Bulgarian is among the languages that have a lexical element that signals the presence of focus (the particle *li*). Moreover, the analysis proposed has the advantage of capturing the ambiguous readings of polar questions and also to determine the difference between interrogatives formed with *dali* and with *li*. In addition, a semantic analysis of polar questions in Bulgarian along these lines accounts for the ambiguous answers in negative contexts, where a positive answer can actually negate the event and vice-versa. Lastly, this approach to the semantics of *li*-questions in Bulgarian accounts for the critical difference observed when the interrogative particle adjoins to the verb and when it adjoins to one of its arguments, as only in the second case (12) there is a presupposition that the event described has taken place.

(11) *RISUVA li Ivan vseki den?*

Paints li Ivan every day

‘Is it painting that Ivan does every day?’/‘Does Ivan PAINT every day?’

(Possible implicature: *Ivan does something else every day*)

(12) *IVAN li risuva vseki den?*

Ivan li paints every day

‘Is Ivan the one who paints every day?’/‘Does IVAN paint every day?’

(Presupposition: *Someone paints every day*)

When the stressed verb precedes the interrogative particle, as in (11), there is narrow focus on the verb which results in a set of alternative events and in an implicature that there is another event that possibly takes place. When the subject precedes the interrogative particle, as in (12), there is focus on the subject and similarly to (11), there is an implicature that there might be somebody else that paints every day. Interestingly, *li* behaves differently with verbs than with nouns, thus focus is informational in (11), but contrastive in (12). As a result, in the second case there is a presupposition that the event described in the sentence has taken place.

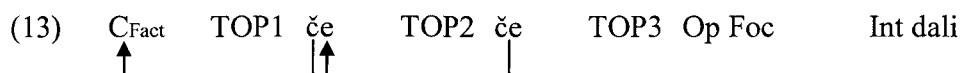
Overall, in chapter 5 I show that both types of *y/n* questions in Bulgarian can be focused, and that *li*-questions are always focus-dependent. The chapter is dedicated to the close connection between interrogatives and focus and shows that this is reflected through their semantics. What is more, it argues that *li*-questions are always focus-related and that their properties can be accounted for only if it is assumed that focus plays a critical role in interrogatives.

Lastly, **CHAPTER 6** goes over the main points of the conclusions drawn from the previous chapters and tackles some more general theoretical problems arising from them. Given the close relationship between focus and polar questions, on the one hand, and the fact that *wh*-words in Bulgarian have to first move to SpecFocP on the other, the chapter discusses the possibility that focus-dependency is a general property of interrogatives in Universal Grammar (UG). Thus, not only the syntactic structure of multiple *wh*-interrogatives standardly assumed in generative grammar needs to be revised, but also the general idea that *wh*-movement is to SpecCP, rather than being focus fronting. The possibility of having a more complex structure of the left periphery of the clause has long been discussed. Many linguists, including Chomsky, have advocated that in order to properly convey information related to illocutionary force, finiteness, topic and focus, and other discourse and pragmatically-related functions, there is a need for more than one functional projection dominating the clause (see Rizzi 1990, 1997, 1999, 2002, 2004; Cinque, 1999⁹; Speas and Tenny, 2001 for recent implementations of this idea, as well as Leafgren, 2002, for a descriptive overview of how semantics and pragmatics influence the subject-object relationship in Bulgarian, and Arnaudova, 2003 for an alternative generative view on the structure of the left periphery of the clause in Bulgarian).

In what refers to the structure of the left periphery of the Bulgarian clause, several recent proposals have been made within the cartographic approach. Among them, Krapova

⁹ Within the cartographic tradition, focus and topic have separate projections and each one of them can appear more than once in the structure. In addition, it is proposed that there is an independent interrogative phrase within the left periphery to which *wh*-elements move. Eventhough a structure containing several discourse-oriented phrases in the left periphery is suitable for Bulgarian, it does not fully account for the Bulgarian data, as it does not explain the possibility of splitting the *wh*-cluster and relates the order of *wh*-elements mainly to their status as discourse-linked disregarding the possibility of an animacy hierarchy. In addition, the cartographic approach has frequently been criticized as the number phrases in the left periphery seems to be unrestricted. Therefore, in this work, I adopt a minimal syntactic structure containing only a TP/IP and a CP and I show that Bulgarian has an additional Focus phrase, situated below CP and above TP/IP.

(2002a) advocates in favour of the separation of the left periphery into a topic and focus field¹⁰.



In her view, the topic field takes care of topicalized phrases that can be reduplicated by a clitic and the focus part is dedicated to phrases in which focus has been used contrastively. The focus field is assumed to also include an Int(errogative)P projection, headed by the interrogative complementizer *dali*. Within this analysis, the focus field is the one that takes care of *wh*-movement.

Further, Krapova (2002b) attributes the order of *wh*-phrases in Bulgarian to a combination of two factors: their nature of being d(iscourse)-linked and the Superiority Condition. According to her view, d-linked *wh*-elements appear before their non-d-linked counterparts. As a whole, d-linked *wh*-phrases are argued to move to a position at least as high as the CP. The order between non-d-linked *wh*-elements is assumed to be determined by Superiority.

In the same spirit, Krapova and Cinque (2003, 2008) propose that d-linked *wh*-words must precede non-d-linked ones and that the order of *wh*-elements is determined by their order before they were subjected to *wh*-movement. The cases where multiple *wh*-fronting apparently violates the Superiority restriction, ‘*involve selective movements triggered by a feature that is not present in any of the intervening elements.*’¹¹ Non-d-linked *wh*-elements within this proposal are assumed to raise to SpecCP, whereas d-linked ones move to a higher syntactic position.

Lastly, Arnaudova and Krapova (2007) attempt to provide a unified account of clitic reduplication in Bulgarian, arguing that two main types of clitic dislocation should be distinguished: Clitic Doubling in the Experiencer constructions (within the TP/IP domain) and Clitic left and right dislocations (outside the TP/IP domain, targeting the TopP within the CP domain).

In that respect, the syntactic structure and the semantic analysis proposed in this dissertation add a new dimension to the long-debated problem of the types of functional

¹⁰ Krapova (2002a), p. 124, ex. 46.

¹¹ Krapova and Cinque (2003), p. 14.

categories required in the left edge of the clause, arguing that in Bulgarian there is a need for at least two syntactic projections related to *wh*-movement of non-d-linked *wh*-elements.

The data presented in this work strongly support the idea that there is a need for at least two functional projections that are dedicated to illocutionary force on the one hand and are discourse-oriented and pragmatically-related on the other.

CHAPTER II

THE SYNTAX OF BULGARIAN QUESTIONS: BACKGROUND DISCUSSION.

A PROPOSAL FOR A NOVEL UNIFYING SYNTACTIC STRUCTURE FOR *WH*- AND *Y/N* INTERROGATIVES

1. The syntactic structure of multiple *wh*-questions in Bulgarian

The syntactic structure of Bulgarian interrogatives and particularly multiple *wh*-fronting have attracted the interest of Slavicists since the early 1980's. Linguists have put forward various proposals for the analysis of Bulgarian *wh*-questions, including movement to multiple SpecCPs, the Principle of Minimal Compliance, *Move* vs. *Attract*, movement to SpecFocus, and left dislocation. In addition to the nature of the movement per se, a phenomenon that has received special interest is the ordering of the *wh*-phrases at the beginning of the clause. The three most prevalent hypotheses in the relevant literature involve the Superiority constraint (with a possible regional or OT-type rule-based hierarchical requirement that an animate *wh*-phrase appears first), the Principle of Minimal Compliance, and the possibility of movement to SpecCP vs. SpecFoc(us)P.

With regards to the syntax of polar interrogatives, the main problem that has been addressed is the position of the interrogative particle *li*. Such a particle has been frequently analyzed as a complementizer (Rivero, 1993; Rudin, 1997; Rudin et al. 1999; Bošković, 2000, 2002; Franks and Bošković, 2001; and Franks, 2005 among others). It has also been proposed that the interrogative particle is in fact generated in a lower position than the complementizer, heading a clause-internal focus projection situated between CP and TP (Izvorski, 1995). In my view, the latter proposal correctly reflects the syntactic and semantic characteristics of *li*, as well as its difference from the interrogative word *dali*, which is a true interrogative complementizer.

In the first section of this chapter, I present and discuss some of the most influential syntactic theories pertaining to multiple *wh*-questions in Bulgarian. Then, I briefly summarize some of the main proposals regarding the syntactic structure of *y/n* interrogatives in this language. Finally, I propose a revised syntactic structure for interrogatives in this language, which strives to account for all the phenomena described in the literature on Bulgarian

questions to this point. This new syntactic structure will further be tested, as it is the working hypothesis for two experimental studies, sentence judgment paper-and-pencil tests, reported and discussed in chapters 3 and 4. The proposed syntactic structure will also serve as a basis for the semantic analysis of Bulgarian polar interrogatives, proposed in chapter 5.

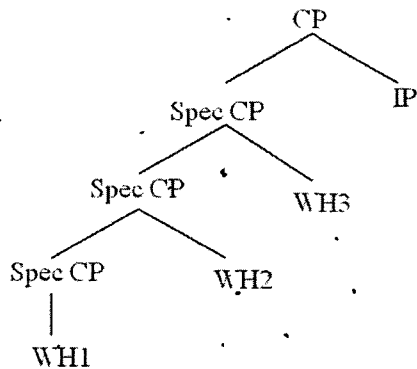
1.1. Rudin (1988, 1997), Rudin et al. (1999)

Rudin (1988a) classifies Bulgarian among the languages allowing multiply filled specifiers [+MFS]. In her view, all *wh*-words adjoin to the left of SpecCP, and form a cluster. With regards to the order of the *wh*-words, Rudin proposes that nominative *wh*-elements must precede non-nominative ones.

In addition, she argues that there are certain differences between animate and non-animate *wh*-words that have the same grammatical function. However, she suggests that Bulgarian ‘match[es] quite neatly the effects of Superiority in languages like English’¹². The proposed structure of multiple *wh*-fronting for languages like Bulgarian is presented in (1) below:

(1) **Multiply filled SpecCP in a [+MFS] language:**

a) Syntactic structure of a [+MFS] language like Bulgarian¹³



b) *Koj kakvo na kogo e dal?*
 Who what to whom has given
 [WH1] [WH2] [WH3]
 ‘Who gave what to whom?’

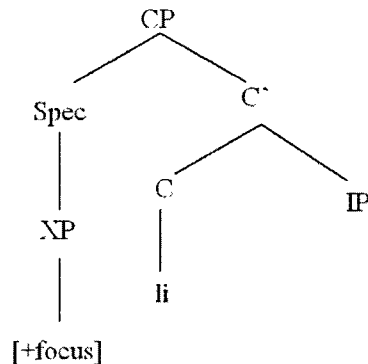
[Example from Rudin (1988a), p. 461, ex. 29a]

¹² Rudin, (1988a), p.473.

¹³ Adapted from Rudin (1988a).

In subsequent work, Rudin (1997), and Rudin et al. (1999) draw a parallel between *wh*- and *y/n* questions with the interrogative particle *li*, suggesting that *li* is a special type of interrogative complementizer. The proposed structure for *y/n* questions when there is another focused phrase (different from the VP) is illustrated in (2) and (3):

(2) Structure of *y/n* questions with focused phrase in Bulgarian¹⁴



- (3) [Prez gradinata] li xodeše?
 Through garden+the Q walked_{2.sg.}
 ‘Were you walking THROUGH THE GARDEN?’¹⁵ [Rudin et al. (1999), p.546, ex. 11b]

Rudin (1997) and Rudin et al. (1999) claim that similarly to partial interrogatives, XP-*li* questions (but not VP-*li* questions) involve presupposition. The element preceding *li* is focused, whereas the remaining, unfocused part of the clause is presupposed information. In the same spirit, Rudin et al. (1999) compare the distribution of *li* in *y/n* questions in Macedonian and in Bulgarian and attribute the possibility of co-appearance of *li* and a *wh*-word to the fact that *wh*-words are focused elements in *wh*-questions. The rest of the structure is assumed to be presupposed information.

- (4) *Kakvo li e nameril v nego?*
 What Q Aux. found_{3.sg.} in him_{Acc.}
 ‘Whatever did he see in him?’ [Adapted from Rudin et al.(1999), p. 561, ex. 41a]

¹⁴ Rudin et al. (1999), p.546, ex. 10.

¹⁵ Capital letters are used to indicate the focused element in the structure.

In the above example, the focused element is the interrogative word, whereas the remaining part of the clause (*he has found something in him*) is considered to be presupposed information. However, Rudin et al. (1999) do not discuss whether such a presupposition is an outcome of the focusing of the *wh*-word or if it is related to the interrogative structure itself. Apart from the nature of the presupposition, there are several questions that remain unexplained. On the one hand, it is not clear how *wh*-words receive their focus interpretation. The authors do not discuss if such a feature is inherent, or if it needs to be checked (via movement or agree). A direct consequence of this is the nature of the difference between focused words and *wh*-elements. If it is assumed, as do Rudin (1997) and Rudin et al. (1999), that Bulgarian is among the languages where focused elements must be moved to the beginning of the clause, then one should expect this to be the case for *wh*-elements as well. If this is so, then the question of why all *wh*-elements have to raise to SpecCP remains unanswered, since the movement of only one *wh*-element should be enough to clause-type the sentence. On the other hand, if *wh*-elements do not move to SpecFocus, then these elements should be able to check their focus feature, for example via agree, and a new focus feature that is specific to them should be postulated. However, this could seem like an ad hoc solution lacking an independent motivation. Another debatable point of the structure in (1) is the fact that *wh*-words are assumed to form a cluster. Lambova¹⁶ (2001, 2004) argues convincingly that the *wh*-cluster can be broken in Bulgarian. Rudin's main argument in favour of the cluster is that clitics adjoin after the last *wh*-phrase in a multiple *wh*-question, as illustrated in (5)¹⁷.

- (5) a) *Koj kakvo ti e dal?*
 Who what you has given
 'Who gave you what?'
- b) **Koj ti e kakvo dal?*
 Who you has what given
 'Who gave you what?'

¹⁶ More details of her analysis are presented towards the end of this section.

¹⁷ Rudin (1988b), p. 5, ex. 13.

However, the data in (5) can also be explained if it is assumed that *wh*-phrases form a prosodic unit, which is expected given their common semantic and syntactic nature. Finally, Rudin does not discuss the discrepancy in the order of *wh*-elements, assuming that *wh*-phrases obey the Superiority restriction. However, no native speakers' judgments study is reported.

1.2. Billings and Rudin (1994)

Billings and Rudin (1994) examine the Superiority effects in Bulgarian multiple *wh*-questions from the perspective of Optimality Theory (OT). Their primary goal is to account for certain animacy effects. The syntactic structure adopted is the multiple filled SpecCP model. Billings and Rudin assume that the order of *wh*-elements at the beginning of a multiple *wh*-question in Bulgarian is the outcome of the combination of the Superiority constraint, a general preference for nominative and animate *wh*-words to appear first, and the presence of a set of rules in the spirit of the OT framework. Billings and Rudin base their proposal on three main 'rules of thumb' for ordering the *wh*-words in the beginning of the clause. First, an external *wh*-element must appear first in the *wh*-cluster if it is animate:

(6) a) *Koj kogo vižda?*
 Who whom sees
 'Who sees whom?'

b) **Kogo koj vižda?*
 Whom who sees

[Billings and Rudin (1994), ex. 8a-b]

As the example above shows, if there is an animate external *wh*-element, it must appear in first position, regardless of the nature of the other *wh*-words.

The second rule Billings and Rudin postulate is that an external *wh*-element has at least the option of appearing first, if it is not animate:

(7) a) *Kogo kakvo e udarilo?*
 Whom what Aux. hit
 ‘What has hit whom?’

b) *Kakvo kogo e udarilo?*
 What whom Aux. hit [Billings and Rudin (1994), ex. 12a-b]

This rule is a reflection of the Superiority constraint: it allows for the possibility of any type of external argument to appear in first position in the *wh*-cluster, independently of its nature (animacy, case, thematic relation). However, as the example in (7a) illustrates, being an external argument is not a sufficient condition for the *wh*-word to be placed in first position; that is, an internal animate argument can appear in front an external inanimate argument.

The third ‘rule of thumb’ proposed by Billings and Rudin is the condition that if there is no external argument or if the external argument is not a *wh*-element, internal *wh*-elements have free order.

(8) a) *Kogo kãde ste videli?*
 Whom where Aux. seen_{2p.pl.}
 ‘Who have you seen where?’

b) *Kãde kogo ste videli?*
 Where whom Aux. seen_{2p.pl.}
 ‘Who have you seen where?’ [Billings and Rudin (1994) ex. 20a-b]

c) *Kakvo koga e kupil?*
 What when Aux. bought_{3p.sg.}
 ‘What did he buy when?’

d) *Koga kakvo e kupil?*
 When what Aux. bought_{3p.sg.} [Billings and Rudin (1994) ex. 21a-b]

This last rule is based on the idea that arguments that have originated within the VP are equidistant to SpecCP, and can therefore be freely reordered at the beginning of the interrogative.

In addition to the rules described above, Billings and Rudin adopt Kuno's (1982) hypothesis, which states that the first (leftmost) *wh*-word is a 'sorting key'. Thus a *wh*-word can only be required to be the first within the cluster. This notion is important for the theory proposed, as the 'rules of thumb' cannot define a *wh*-phrase as occupying second, third or last position in the cluster. The authors also adopt Williams' (1994) approach to Superiority in that it is time-line dependent. As a result, an argument is considered to be the highest if it occupies the SpecIP position (independently of its case or thematic role in the clause) as such a position is a marker of prominence (Izvorski, 1993). The purpose of such an approach to Superiority is to illustrate that nominative arguments and subjects are not necessarily the highest elements in the structure. Thus, they do not always need to surface first in the *wh*-cluster.

In order to account for the correct order of the *wh*-elements in multiple *wh*-questions, Billings and Rudin propose three constraints designed in the spirit of the OT framework, illustrated in (9) below¹⁸.

(9) **Constraints on the order of *wh*-words:**

- i) **SUBJSUP:** Fill SpecIP with the highest XP within IP
- ii) **SUBJHUM:** SpecIP must be human
- iii) **SORTSUP:** The structurally highest *wh*-phrase (in an argument position) must be the sorting key.

The first constraint ensures that the element positioned in SpecvP¹⁹ moves to SpecIP. In case there is no external argument, any element can move to SpecIP from within the VP. The second constraint represents a relation between pragmatics and syntax and ensures that the element in SpecIP is [+human]. Finally, the last constraint is an OT representation of Superiority constraint, and requires the highest *wh*-element in the structure to appear in leftmost position. The three constraints are unranked with respect to each other, thus leaving

¹⁸ Billings and Rudin (1994), p. 48-49.

¹⁹ In their work, Billings and Rudin use PrP (Predicate Phrase) as the outer layer of the layered VP. External arguments (are assumed to) originate in PrP. I adapt their terminology to that currently used in syntactic analysis.

open the possibility of having more than one possible order of the *wh*-elements if two candidates violate the same constraint or if each violates just one.

The OT-approach to the sometimes contradictory data on Bulgarian multiple *wh*-questions has the advantage of linking pragmatics to syntax in designating SpecIP as a discourse-prominent position. In addition, such an analysis correctly reflects the fact that the Superiority constraint or an animacy-based hierarchy of *wh*-elements alone cannot entirely account for the data. However, the proposal put forward by Billings and Rudin faces some problems as well. First, it does not fully explain why animate arguments tend to appear more often in SpecIP. Neither a syntactic requirement, nor a feature, nor a pragmatic rule is postulated to account for this fact. Thus, it is unclear why animate *wh*-words are more discourse-prominent (if it is assumed that the SpecIP position is related to discourse). One way to relate discourse prominence to a certain syntactic position is to consider elements in such a position to be focused. However, such a possibility is not discussed by Billings and Rudin. Second, in the case of the combination of two internal arguments, it is assumed that word order is irrelevant as both arguments are generated within the VP. However, the authors present no examples with two internal inanimate arguments. All examples contain an internal inanimate argument and an adjunct. Thus, the data presented cannot be considered fully accurate, as adjuncts can appear at several levels in the derivation. As a consequence, even though certain positions for adjunction are preferred to others, it cannot be concluded, based on the order between an argument and an adjunct only, that a sentence obeys or violates Superiority. Another point that needs to be raised is the fact that the data presented as a base for the creation of the OT-constraints seem to be somewhat contradictory in terms of register. On the one hand, colloquial and literary registers do not seem to exhibit the same order preferences; on the other hand, the nominative *wh*-word *koj* (who) seems to have a special status among the rest of the interrogative pronouns. Overall, the above account explains the data only partially in terms of the preferred order of *wh*-elements. Lastly, an OT-based explanation of certain facts still requires a syntactic analysis and justification, as well as the discourse-related function of the SpecIP position.

1.3. Richards (1998, 2001)

A different analysis has been proposed by Richards (1998, 2001), who studies the order of the *wh*-words in multiple interrogatives in Bulgarian and the restrictions on movement in the languages of this type. He distinguishes between two types of languages: (i) CP absorption languages, which move *wh*-words to SpecCP (i.e. Bulgarian); and (ii) IP absorption languages, which move *wh*-phrases to SpecIP (e.g. Serbo-Croatian). The main difference between these two types of languages is that only the CP absorption type obeys the Superiority restriction. In contrast, IP absorption languages remain indifferent to this condition because at Spell Out, C^0 has not entered the derivation yet, hence there is no true movement of the *wh*-phrase but rather left dislocation. This distinction between true movement and left dislocation captures Serbo-Croatian data where the order of *wh*-words does not obey Superiority, without the need of postulating any restrictions or parameters in UG. In the case of Bulgarian, Richards explains the cases of Superiority violation by adopting the Principle of Minimal Compliance (PMC):

For any dependency D that obeys constraint C, any elements that are relevant for determining whether D obeys C can be ignored for the rest of the derivation for purposes of determining whether any other dependency D' obeys C.

[Richards (1998), p.601]

A direct consequence of this principle is that a syntactic head within a well-formed domain can be ignored when determining if a particular domain is well formed. In other words, this principle predicts the grammaticality of certain cases when Superiority is violated in Bulgarian, as well as more liberty with respect to movement out of a *wh*-island. Following the PMC, only the first *wh*-word in a multiple *wh*-question will have to obey Superiority. The rest of the *wh*-words, given that they are within a well-formed domain, do not have to follow this requirement. In the case of *wh*-islands, given that there is previous movement consistent with the Superiority restriction; elements can be extracted out of the island, disregarding Superiority or island restrictions.

- (10) ?*Koj žurnalist_j koja kniga_i t_j razprostranjavaše [malvata će*
 Which journalist which book spreaded the-rumour that
senatorāt iska da zabrani t_j?
 the-senator wants to ban

‘Which journalist spread the rumor that the senator wanted to²⁰ ban which book?’

[Richards (1998) p.607, ex. 18b]

In (10), the derivation does not crash, because the movement of the interrogative phrase *which journalist* triggers the PMC and permits the other interrogative phrase *which book*, to raise, violating the Subjacency and Superiority restrictions. This approach seems quite attractive because it is consistent with the economy principle which is central to current minimalist theories. However, it does not always predict the correct structures for Bulgarian. In particular, the PMC predicts that in all *wh*-questions where only two *wh*-words are fronted Superiority must be obeyed. However, native speakers’ judgments suggest that this is not necessarily the case when both *wh*-phrases are internal arguments²¹. To this effect, consider the paradigm in (11) below:

- (11) a) *Kakvo na kogo dade?*
 What to whom gave_{2p.sg.}
 ‘What did you give to whom?’
- b) *Na kogo kakvo dade?*
 To whom what gave_{2p.sg.}
 ‘What did you give to whom?’
- c) *Koj kogo vidja?*
 Who whom saw_{3p.sg.}
 ‘Who saw whom?’

²⁰ I follow Bošković (1997) in assuming that *da* in Bulgarian introduces a non-finite complement in Bulgarian.

²¹ More data on native speakers’ preferences and judgments is presented in the next chapter with Experiment 1.

- d) **Kogo koj vidja?*
 Whom who saw_{3p.sg.}
 ‘Who saw whom?’

As shown in (11) Bulgarian questions cannot be directly explained by adopting the PMC. Only the examples in (11a), (11c) and (11d) could be explained under this principle. In (11a) and (11c) the first *wh*-element has moved appropriately, and given that these are only two *wh*-phrases, the clauses obey the Superiority restriction. In contrast, in (11d) the first *wh*-phrase (*kogo* – ‘whom’) has not moved appropriately, but has crossed over a higher *wh*-element (*koj* – ‘who’), which results in its ungrammaticality. Given these facts, (11b) remains puzzling: if it is assumed that (11d) is unacceptable due to the wrong move of the first *wh*-element, then (11b) should be unacceptable as well, contrary to native speakers’ judgments. What is more, if it is assumed that (11b) is grammatical since one of the *wh*-phrases has moved properly, then (11d) is expected to be acceptable, which is not the case. In addition, this approach faces the same challenges as Rudin’s account. It predicts that since all *wh*-words are moved to SpecCP, they would form a cluster. However, Lambova (2001, 2004) points out that this cluster can be broken.

- (12) a) *Koj sigurno kakvo e kupil?*
 Who probably what Aux. bought
 ‘Who has probably bought what?’

- b) *Koj vinagi kakvo e kazval?*
 Who always what Aux. said
 ‘Who has always said what?’

[Lambova (2004) p. 23, ex. 24]

As Lambova (2004) notes, the so called *wh*-cluster can be broken by many parentheticals and also by different types of adverbs. What is more, the PMC raises additional problems for other languages. A general question that this approach cannot answer is why there are languages with *wh*-in-situ and languages which front only one or all of their *wh*-words. If a rule must be complied with only once, why is this realized differently cross-linguistically and why are there languages that strictly obey Superiority? Another general question is why or how Spell Out is

possible before C^0 is merged. If phase theory is adopted, Spell Out should happen only at the end of the phase. Under what circumstances are some (but not all) languages allowed to have this special Spell Out? All these are fundamental problems which remain unclear if the PMC is adopted.

1.4. Lazarova-Nikovska (2002)

Another approach has been put forward by Lazarova-Nikovska (2002), who studies *wh*-questions in Macedonian, but also suggests an analysis for Bulgarian. Lazarova-Nikovska's basic assumptions are that *wh*-words substitute missing information in the sentence, that they move to SpecCP, and that the verb moves from T to C. She proposes that these assumptions predict the right word order in *wh*-questions with subject-verb inversion illustrated in (13) below.

- (13) a) *Kakvo jade deteto?*
 What eats child-the
 'What does the child eat?'
- b) **Kakvo deteto jade?*
 What child-the eats
 'What does the child eat?'

A structure with a *wh*-element situated in SpecCP, the verb moved to C^0 , and the subject in SpecIP correctly predicts the contrast between (13a) with a subject in a final position and (13b) with a preverbal subject. However, as the author points out, there are cases when the subject can precede the verb.

- (14) *?Na kogo kakvo Maria dade?*
 To whom what Maria gave
 'What did Maria give to whom?'

Lazarova-Nikovska claims that this is only in the case of multiple *wh*-fronting, where instead of moving to SpecCP, the *wh*-elements have been left-dislocated. In such cases, since there is no movement to SpecCP, the verb does not raise to C⁰ and the subject-verb order is not altered. Although this analysis predicts the right word order in some *wh*-questions, it leaves some problems unsolved. Firstly, it does not address the cases where a preverbal subject is possible within a single *wh*-question, as in (15)²².

- (15) a) *Zašto **Maria** kupuva knjigi?*
 Why Maria buys books
 ‘Why is Maria buying books?’
- b) **Koga **Maria** idva?*
 When Maria comes
 ‘When is Maria coming?’
- c) *Ot kogo **Maria** kupuva knjigi?*
 From whom Maria buys books
 ‘From whom is Maria buying books?’
- d) *Na kogo **Maria** dade knjigata?*
 To whom Maria gave book-the
 ‘To whom did Maria give the book?’
- e) *Na kogo dade knjigata **Maria**?*
 To whom gave book-the Maria
 ‘To whom did Maria give the book?’
- f) *??Na kogo dade **Maria** knjigata?*
 To whom gave Maria book-the
 ‘To whom did Maria give the book?’

²² The subjects in the examples in (15) are presented in **bold** for convenience.

The examples above illustrate that preverbal subjects are acceptable in *wh*-questions with both adjuncts (15a) and arguments (15c), (15d). However, it is not the case that preverbal subjects are always acceptable with adjuncts, as shown in (15b). Therefore, it cannot be concluded that the different subject-verb order is due to the thematic/non-thematic nature of the *wh*-phrase. Furthermore, the fact that subjects can appear pre- or post-verbally in the same environment suggests that the word order is not defined only by a possible T-to-C raising operation. Even if a solution working around the number of arguments or the nature of the *wh*-phrase (i.e. PP vs. DP) were to be found, the examples in (15c) and (15d) still remain unexplained. If *wh*-phrases raise to SpecCP and the verb undergoes head movement from V⁰ to T⁰ to C⁰, then the contrast between (15f) and (15e) is not accounted for. Under this head movement analysis, one would expect that the correct word order is the one in (15f), rather than the one in (15e). What (15d) suggests, though, is that subjects in Bulgarian have the option of remaining in SpecvP, rather than obligatorily raising to SpecIP. Therefore, subject-verb inversion does not necessarily point to a head movement of the verb to C⁰.

A second problem for Lazarova-Nikovska's analysis is that preverbal subjects are not always possible with multiple *wh*-questions, contrary to her proposal, as (16)²³ shows.

- (16) a) **Kakvo na kogo Maria kupi?*
 What to whom Maria bought
 'What did Maria buy to whom?'
 b) *Kakvo na kogo kupi Maria?*
 What to whom bought Maria
 'What did Maria buy to whom?'

²³ I am abstracting over the order of *wh*-words at the beginning of the clause. The order presented here is parallel to the one of a declarative sentence:

Ex. i) *Maria kupi kniga na Ivan.*
 Maria bought book to Ivan
 'Maria bought a book for Ivan.'

However, the order of the interrogatives can be also reversed and the judgments remain the same. Compare (16) to the example below:

- ii) *Na kogo kakvo kupi Marija?*
 To whom what bought Maria
 'What did Maria buy to whom?'

As the examples in (16) illustrate, multiple *wh*-questions do not always allow for subjects to appear pre-verbally, similarly to what has been observed for single *wh*-questions by Lazarova-Nikovska, as the example in (13) shows. Hence, there is no need to postulate a different kind of movement (left dislocation) for multiple *wh*-questions. Finally, it is not clear why *wh*-phrases should behave differently depending on their number in the sentence. If a *wh*-phrase needs to move in order to check features in a single *wh*-question, it is logical to have the same need in a multiple *wh*-interrogative as well. It is not theoretically appealing to have one constituent realizing different types of movement in the same environment. Therefore, I conclude that this analysis does not yield the right predictions for Bulgarian.

1.5. Bošković (1998, 2002)

Perhaps the most influential analysis of multiple *wh*-questions in Bulgarian has been developed by Bošković (1998, 2002a) who initially distinguishes between two types of movement:

(i) *Move*: a movement triggered by ‘formal inadequacies’ on the element being moved [i.e. Focus-type fronting]; and

(ii) *Attract*: a movement caused by ‘formal inadequacies’ on the goal [i.e. *wh*-fronting to SpecCP].

These two types of movement generate two types of fronting. *Move* results in non-*wh*-fronting, which is the need for every *wh*-phrase to appear at the beginning of the clause, in view of the fact that it is inherently focused. In contrast, *Attract* has *wh*-movement as its outcome, and represents the need for a [+*wh*] C⁰ to have an overt specifier. However, as the author points out, it is theoretically implausible to base a whole typology on the strength of a feature either on the goal or on the probe. It is more desirable to be able to account for different language types based only on the type of the goal itself. Consequently, Bošković argues that the distinction between these two movements can be derived by the features of the goal for each type of movement. His analysis is based on the assumption that both features [+*wh*] and [+Focus] reside on C⁰ in Bulgarian. Thus, he proposes that in Bulgarian the [+*wh*] feature on C⁰ is of the same type as in English: it needs an overt specifier, attracts only one

element which has to be the highest one, and obeys the Superiority constraint. With regards to the [+ Focus] feature on C⁰, Bošković argues that it is of the *attract-all* type (as in Serbo-Croatian, but in a different head) and the resulting movement does not need to obey Superiority, since the constraint is irrelevant when all phrases have to be fronted. This analysis predicts that in Bulgarian the highest *wh*-word always has to appear first, whereas the rest of the *wh*-elements can appear in random order²⁴:

(17) a) *Kogo kak e celunal Ivan?*
 Whom how is kissed Ivan
 ‘How did Ivan kiss whom?’

b) *?*Kak kogo e celunal Ivan?*

(18) a) *Koj kogo kak e celunal?*
 Who whom how is kissed
 ‘Who kissed whom how?’

b) *Koj kak kogo e celunal?*

(19) a) *Kogo kakvo e pital Ivan?*
 Whom what is asked Ivan
 ‘Whom did Ivan ask what?’

b) *?*Kakvo kogo e pital Ivan?*

The examples in (17) through (19) show that the highest *wh*-element must appear first in all cases. This is valid not only when both *wh*-phrases are arguments – as in (19) – but also when the second *wh*-phrase is an adjunct; compare (17a) and (17b). In contrast, in the case of three *wh*-phrases, as in (18), it seems that there is a restriction only on the position of the highest *wh*-element. The order of the other *wh*-words is irrelevant.

²⁴ Examples (17) through (19) are examples (31) through (33) from Bošković, 1998.

The analysis outlined above faces the same problems as the one developed by Richards (1998, 2001). It gives the right predictions only for part of the Bulgarian data. It does not account for the cases where even the highest *wh*-phrase violates Superiority (see example (11a-b) repeated in (20a-b) below) and it predicts the formation of an unbreakable *wh*-cluster, which was shown to be wrong for Bulgarian; see example (12) repeated as (21).

(20) a) *Kakvo na kogo dade?*
 What to whom gave_{2p.sg.}
 ‘What did you give to whom?’

b) *Na kogo kakvo dade?*
 To whom what gave_{2p.sg.}
 ‘What did you give to whom?’

(21) a) *Koj sigurno kakvo e kupil?*
 Who probably what Aux. bought
 ‘Who has probably bought what?’

b) *Koj vinagi kakvo e kazval?*
 Who always what Aux. said
 ‘Who has always said what?’

[Lambova (2004) p. 23, ex. 24]

The above examples are problematic if it is assumed that the highest *wh*-element always needs to appear first, and that all *wh*-phrases must move to SpecCP. In addition, some theoretical questions arise with regards to this approach. How can one head host two different features, each with different characteristics? What is the primary purpose of such a functional head and how is its double nature compatible with current approaches in syntactic theory? Moreover, if C^0 is the head attracting elements bearing contrastive focus, then topics must be situated in a specifier higher than the one created to host the focused element. Since CP is the highest syntactic projection in this system, the [+Topic] feature should be hosted in C^0 as well. In such a case, all languages should be able to have multiple specifiers in their CPs and should in principle be able to host multiple *wh*-phrases. However, such a configuration clearly

overgenerates and does not yield the right predictions. This also creates a functional head (C^0) with an extremely complex nature. Finally, the whole analysis is again based on the assumption that languages disobeying Superiority, such as Serbo-Croatian and Russian, are able to reach Spell Out before C^0 is merged, which is problematic for current phase theory. Bošković's analysis accounts well for a very large range of data, but not all, and therefore it needs to be reexamined.

1.6. Izvorski (1995)

Having discussed some of the most influential analyses of Bulgarian questions, I now turn to two perhaps less popular options which can account for the data more satisfactorily, and could be combined to develop an accurate structure for interrogatives in this language. In what follows I discuss briefly the analyses of Izvorski (1995) and Lambova (2001, 2004).

First, Izvorski (1995) studies questions and focus movement in Bulgarian. In her analysis of *y/n* questions, she postulates the existence of a clause-internal focus projection (FP), situated in the highest functional projection of a split IP, below the CP. The proposed structure for polar questions such as (22a) and (22b) is the one illustrated in (23a) and (23b), respectively.

(22) a) *Dali Ivan pie?*
 Q Ivan drinks
 'Does Ivan drink?'

b) *Pie li Ivan?*
 Drink Q Ivan
 'Does Ivan drink?'

(23) **Structure of *y/n* interrogatives in Bulgarian²⁵:**

- a) [_{CP} C *dali* [_{FP} XP F [...]]]
 b) [_{FP} [_{XP} F *li* [...]]]

²⁵ Izvorski (1995), p. 64, ex. 32.

The author assumes that unlike the interrogative complementizer *dali*, the question particle *li* is generated in F(ocus)^o and has a [+Q] feature. In the VP/IP-*li* type of *y/n* questions, the verb complex undergoes head movement to F^o to check a focus feature. Focused constituents move to SpecFP, and thus in an XP-*li* question, a phrase moves to SpecF(oc)P satisfying the focus features of XP.

- (24) *Vodka li pie Ivan?*
 Vodka Q drinks Ivan
 ‘Is it vodka that Ivan drinks?’

In contrast to the example in (22), where it is assumed that the verb complex has moved to F^o, the focused object in (24) has raised to SpecFP.

With respect to *wh*-interrogatives, Izvorski puts forward a novel approach, distinguishing the landing site of question words (SpecFP) from that of relative pronouns (SpecCP)²⁶.

- (25) a) *Koe pismo napisa deteto?*
 Which letter wrote the-child
 ‘Which letter did the child write?’

b) **Koe pismo deteto napisa?* [Izvorski (1995) p. 54, ex. 1]

- (26) *Pismoto, koeto deteto napisa e na masata.*
 The-letter which the-child wrote is on the-table
 ‘The letter which the child wrote is on the table.’ [Izvorski (1995) p. 54, ex. 3]

It is traditionally assumed that interrogative and relative pronouns have the same landing site: SpecCP²⁷. However, subject-verb inversion is observed in interrogative but not in relative clauses (as illustrated in the contrast between (25) and (26) above).

²⁶ For an alternative approach, distinguishing free relatives and comparatives as a case of head-movement from *wh*-interrogatives as phrasal movement, see Donati (2006).

²⁷ For alternative proposals, see Rizzi (1999, 2004), Poletto (2000), Munaro (2000) a.o.

Based on the placement and interpretation of adverbs, as well as on word order in *wh*-questions containing compound tenses, Izvorski further proposes that the verb does not raise to C in constituent questions in Bulgarian. In addition, she argues that the subject remains within the VP unless focused²⁸. These points are illustrated in (27).

(27) **Adverb placement**

a) *Ivan podade bǎrzo pismoto na Maria.*
 Ivan gave quickly the-letter to Maria

Ivan gave the letter to Maria quickly.

b) ?? *Kakvo podade Ivan bǎrzo na Maria?*
 What gave Ivan quickly to Maria

‘What did Ivan quickly give to Maria?’

c) *Kakvo podade bǎrzo Ivan na Maria?*
 What gave quickly Ivan to Maria

‘What did Ivan quickly give to Maria?’

[Izvorski (1995), p. 56-57, ex. 6-7-8]

The sentence in (27a) illustrates the word order in a declarative containing a VP-adverb, such as *quickly*. The example in (27b) shows the predicted word order under the traditional analysis, where it is assumed that *wh*-words move to SpecCP and the verb raises from T-to-C) However, the preferred word order is the one in (27c), which is the predicted sentence under a non-raising analysis of *wh*-questions. The verb precedes the adverb as in the declarative clause and the subject remains within the VP where it was originally merged.

Another argument used in favour of the non-movement analysis of questions is the interpretation of adverbs.

²⁸ For an opposing view on Slavic languages, and in particular on Russian and Ukrainian, see Lavine and Freidin (2002).

(28) **Adverb interpretation**

a) *Ivan pravilno otgovori na vāprosa im.*
Ivan correctly answered to question their

‘Ivan correctly answered their question’

1. Ivan did the right thing when answering their question.
2. Ivan gave a correct answer to their question. [Izvorski (1995), p.57, ex. 10]

b) *Na kakvo otgovori pravilno Ivan?*
To what answered correctly Ivan

‘What did Ivan answer correctly?’

2. Ivan gave a correct answer to their question. [Izvorski (1995), p.58, ex. 15]

c) *Na kakvo pravilno otgovori Ivan?*
To what correctly answered Ivan

‘What did Ivan correctly answer?’

1. Ivan did the right thing when answering their question.
2. Ivan gave a correct answer to their question. [Izvorski (1995), p.58, ex. 16]

Preverbal adverbs like *correctly* in (28a) can be ambiguous between subject-oriented (interpretation 1) and manner-oriented (interpretation 2) readings. In English *wh*-questions, the adverbs keep both readings, regardless of the fact that they appear in post-verbal position in the T-to-C raising. However, the corresponding post-verbal word-order in Bulgarian (28b) maintains only the reading describing the predicate of the sentence. This outcome is problematic for the traditional analysis of constituent questions, as it cannot account for the loss of reading. In comparison, only one reading for example (28b) is an expected outcome under the non-raising hypothesis. That is, the adverb maintains both readings, only when it is in pre-verbal position, as shown in (28c).

Another piece of evidence that Izvorski uses to show that there is no need for T-to-C movement in Bulgarian *wh*-interrogatives is the word order in compound tenses.

(29) **Word order in compound tenses**

a) *Za kakvo beše napǎlno zabravila Maria?*
About what was completely forgotten_{Fem.sg.} Maria
'What had Maria completely forgotten about?'

b) **Za kakvo beše Maria zabravila?*
About what was Maria forgotten_{Fem.sg.}
Intended reading: 'What had Maria forgotten about?'

[Izvorski (1995), p. 58 - 59, ex. 17 and 18]

The example in (29a) shows that the auxiliary is not a clitic to the participle, as the adverb can intervene between the two. This predicts that nothing precludes the subject from appearing in the same position, as it does in English. Contrary to what the traditional analysis predicts, this word order is unacceptable in Bulgarian, as shown in (29b). The correct word order is when the subject is sentence-final. Izvorski (1995) assumes that in this structure the auxiliary has raised to T, that the lexical verb has moved to its own agreement projection (above the VP), and that the subject has remained within the verb phrase.

Izvorski (1995) also shows that only relative pronouns, not interrogative words, move to SpecCP. The evidence comes from topicalized constituents in embedded *wh*-questions and from relativization of interrogative clauses, as in (30a) and (30b) respectively below.

(30) a) *Popitah go novata si kniga na kogo šte posveti.*
Asked_{1p.sg.} him the-new Refl. book to whom will dedicate
'I asked him to whom he'll dedicate his new book.'

b) **Popitah go na kogo novata si kniga šte posveti.*

The sentences in (30) illustrate that topicalized phrases (i.e. *his new book*) appear before interrogative words in embedded *wh*-questions, contrary to what is predicted if *wh*-elements raise to SpecCP. Thus, the order in (30a) proves to be problematic for such an analysis, because if the *wh*-element is in SpecCP, it is expected that the topicalized phrase will follow the interrogative. This example can only be accounted for if it is assumed that *wh*-words do

not raise all the way up to the SpecCP, but land in the highest position of a lower functional projection, such as IP (or Focus Phrase if its existence is assumed).

Another piece of evidence showing that relative and interrogative pronouns do not share the same landing site comes from relativization of constituent questions:

(31) **This is the child whom John doesn't know when he'll see.*

(32) *Vidjax edna kniga kojato se čudja koj znae koj prodava.*
Saw_{1sg} one book which refl. wonder_{1sg} who knows who sells
I saw a book which I wonder who knows who sells it.'

The English example in (31) shows that it is impossible to form a relative out of a *wh*-interrogative. The reason for this is that the interrogative word has raised to SpecCP and does not allow further extractions from the clause. In contrast, Bulgarian allows such extraction, as illustrated in (32). Once again, this would be possible only if it is assumed that the interrogative is situated in a lower position, whereas the relative pronoun is in SpecCP. Therefore, an attractive landing site for the *wh*-movement becomes the clause-internal focus projection, which has been independently proposed as landing site for *wh*-movement for other languages (Vallduvi, 1990 for Catalan; Campos, 1986; Goodall, 1990 and Fontana 1993 for Spanish).

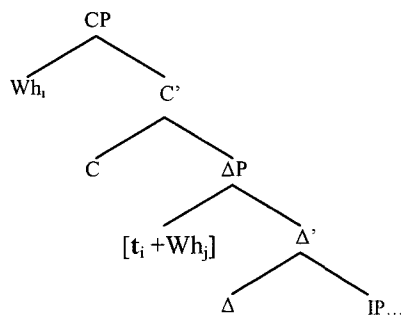
To summarize Izvorski's (1995) proposal, in Bulgarian *y/n* questions the verb does not raise to C°, but remains in I°. In addition, subjects remain within the VP and do not raise to SpecIP unless they are focused. The author also argues in favour of a functional projection below CP – a focus phrase - that is the landing site for *wh*-movement. Given that the focus phrase headed by *li* is the highest functional projection in a split IP, the analysis explains why preverbal subjects are unacceptable in an XP-*li* question. It also explains the co-occurrence of *wh*-words with the interrogative particle *li*. This analysis has several advantages. On the one hand, it sheds light on the problematic subject-verb inversion in Bulgarian interrogatives and accounts for the possibility of relativization out of *wh*-questions. On the other hand, this study provides a unified analysis for all interrogatives in Bulgarian, explaining in addition the impact of focus on both *wh*- and *y/n* interrogatives. Nonetheless, this analysis needs to be further developed or revised in order to address a few remaining problems. Izvorski assumes

that preverbal subjects are possible if they have scrambled to AgrTP. However, current syntactic theory does not assume such a projection. Another problem that this analysis does not address directly is the order of the *wh*-elements at the beginning of the clause. In addition, it also disregards problems like co-occurrence of multiple *wh*-phrases with an interrogative particle. Finally, if all *wh*-phrases raise to the same position, this analysis will fail to account for the cases where the *wh*-cluster can be split, such as the ones illustrated in (12) above. I believe that Izvorski's proposal on the nature of the *wh*-movement in Bulgarian is adequate; however, a bigger pool of data must be considered in order to fully account for all characteristics of interrogatives in Bulgarian.

1.7. Lambova (2001, 2004)

The second analysis which provides accurate predictions for Bulgarian interrogatives is put forward by Lambova (2001, 2004). Similarly to Izvorski (1995), Lambova argues that Bulgarian has an independent clause-internal projection, labeled Δ P, which licenses both topic and focus. The presence of this functional projection below C^0 allows for a configuration which accounts for the possibility of splitting the *wh*-cluster (recall examples in (12) above: '*who probably what bought*'). Lambova proposes that one *wh*-phrase raises to SpecCP, checking the interrogative feature of C^0 , whereas the rest of the interrogative words adjoin to Spec Δ P, since in Bulgarian all focused elements have to be fronted. According to this analysis, sentences with multiple *wh*-questions have the structure presented in (33) below:

(33) **Structure of MWh: (Lambova, 2001)**



The structure proposed by Lambova predicts that the *wh*-cluster can be split only after the first *wh*-word, as illustrated in (34) below²⁹:

- (34) a) *Koj, navjarno, kăde koga ŝte porăča tortata?*
 Who perhaps where when will order cake-the
- b) **Koj kăde, navjarno, koga ŝte porăča tortata?*
 Who where perhaps when will order cake-the
- c) **Koj koga, navjarno, kăde ŝte porăča tortata?*
 Who when perhaps where will order cake-the
 ‘Who will perhaps have the cake made where and when?’

As shown in the examples above, the two lower *wh*-phrases make a cluster to the exclusion of the higher one. As Lambova points out, this is possible only if the *wh*-expressions are hosted by different heads. Topicalized particles, parentheticals and adverbs can appear between the two levels of the *wh*-cluster, adjoining higher to Δ P rather than to a lower part of the *wh*-cluster. However, Lambova also observes that Bulgarian has a PF requirement for topicalized verbal arguments to appear before all *wh*-words. As Δ P is the landing site for both: topic and focus, topics are assumed to adjoin to such projection. In such a case the copy of the first *wh*-element is pronounced instead of the head of the chain³⁰, as shown in (35).

- (35) a) **Koj za podarăk kakvo iska?*
 Who for present what wants
 Intended meaning: ‘For a present who wants what?’
- b) *Za podarăk koj kakvo iska?*
 For present who what wants
 ‘For a present who wants what?’

²⁹ The example is from Lambova (2004), p. 28, ex. 32.

³⁰ The example is adapted from Lambova (2001), p.126, ex. 25 and 26.

c) [CP *køj* C [Spec Δ P *za podaräk* [Spec Δ P [[*køj*] *kakvo*] *iska* [VP *køj iska kakvo za podaräk*]]]]

Lambova attributes the necessity of pronouncing the lower copy of the highest *wh*-element to a clash in the intonational contour between the structure with a topic and the *wh*-interrogative³¹. The only solution for saving the derivation from crashing is to accommodate the structure to the intonation pattern of topic constructions by pronouncing the lower copy of the highest *wh*-element.

The structure for Bulgarian *wh*-interrogatives proposed by Lambova (2001, 2004) has several advantages. On the one hand, it shows that *wh*-elements are focus-related and as such they need to satisfy their [+focus] feature. On the other hand, it reveals that the *wh*-cluster can be split and that *wh*-fronting takes place in two steps: first move to Δ P and second raising of the highest *wh*-word to SpecCP. There are a few remaining issues to be addressed, however. First, topic and focus are hosted by the same functional head, which again poses the question of the dual nature of the syntactic projections. In particular, it raises the problem of whether one functional head can check two apparently contrasting features, like topic and focus. Second, the fact that only topicalized arguments (but not focused ones) must appear before all *wh*-words suggests that topicalized elements should rather be raised to a higher position than the one occupied by fronted *wh*-elements. There is no need to postulate a special PF requirement, as topics are typically appearing sentence-initial and are normally assumed to be adjoined to the highest functional projection in the clause (SpecCP). Lastly, Lambova does not address the question of the order of *wh*-elements, as she assumes that a general preference for obeying the Superiority constraint holds in Bulgarian. I conclude, therefore, that in order to fully account for the data, the analysis proposed by Lambova should be modified to some extent.

Having discussed some of the most influential proposals with regards to *wh*-interrogatives, I turn next to the syntactic structure of polar questions in Bulgarian. In what follows, I present a brief review of the most well-known approaches to this topic.

³¹ For more details, see Lambova (2001), pp. 129-130.

2. The syntax of Bulgarian *y/n* questions. Previous studies and arguments for a unified analysis of all interrogatives

Similarly to the syntactic structure of multiple *wh*-interrogatives, the derivation for polar question has attracted the interest of Slavic linguists since the early 1980s. As shown in Izvorski's (1995) analysis, there are two types of *y/n* (*y/n* henceforth) questions in this language (*dali*- and *li*-questions). In addition, both types of *y/n* questions can be influenced by the presence of focus. The challenge comes from the fact that Bulgarian requires an analysis which would be compatible with the properties of interrogatives as a clause type, while also accounting for all the characteristics of polar questions described above. In addition, an adequate syntactic structure for interrogatives in Bulgarian should be able to explain the co-occurrence of *wh*-words with *li*, but rule out their co-appearance with *dali*. The literature on this topic offers several different views, some of which I discuss briefly below.

2.1. Rivero (1993)

Rivero (1993), building on Rudin (1986, 1988) and Rivero (1991), proposes that the interrogative particle *li* in Bulgarian and Serbo-Croatian (SC henceforth) is a bound morpheme, generated in C^0 . She argues that the surface order is derived via two strategies: (i) verb raising to C^0 , available in both Bulgarian and SC; and (ii) lowering of the interrogative particle, available only in Bulgarian. However, lowering has typically been viewed as problematic in generative grammar, and lowering operations are banned in the Minimalist Program. Thus, derivations involving *li* have subsequently been reanalyzed. Izvorski, King and Rudin (1997) argue that the syntactic lowering operation can be substituted by prosodic inversion in phonological form (PF). Both this approach and Rivero's (1993) analysis maintain the idea that *li* is an interrogative complementizer generated in C^0 . This idea may be suitable for languages like SC, where the interrogative particle is a second position clitic and has a fixed position in the clause. However, positioning the interrogative particle in C^0 in Bulgarian is problematic for several reasons. First, if *li* is generated in C^0 , Bulgarian must be among the languages where the complementizer can be filled in a *wh*-question, as *wh*-elements can co-occur with this interrogative particle. In contrast to *li*, the other interrogative complementizer (*dali*) cannot appear in constituent questions. The same observation is valid

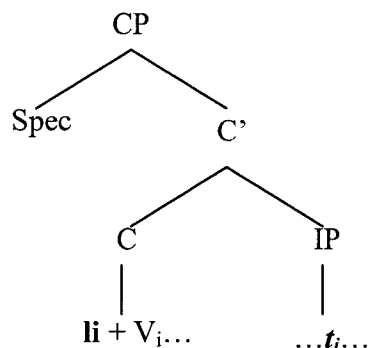
for the declarative complementizer (*če* – ‘that’), which shows that Bulgarian is among the languages which do not allow an overtly filled C^0 when there is also a *wh*-element in SpecCP. Second, if *li* is a complementizer, it should have scope over the whole clause, which is contradicted by the interpretation of *li*-questions, as they frequently parallel constituent questions.

2.2. Rudin (1997) and Rudin et al. (1999)

Rudin (1997) draws a parallel between *wh*- and *li*-questions, suggesting that the interrogative particle *li* is a special type of interrogative complementizer. She argues that similarly to partial interrogatives, XP-*li* questions (with the exception of VP-*li* questions) involve a presupposition. The element preceding *li* is focused, whereas the remaining, unfocused part of the clause is presupposed information.

In the same spirit, Rudin et al. (1999) compare the distribution of *li* in *y/n* questions in Macedonian and Bulgarian and claim that in both languages, *li* checks a focus feature on C^0 and heads CP³², which results in an interrogative interpretation. In addition, if no element in the derivation is focused (moved to SpecCP) the verbal complex (verb, inflection, auxiliaries, negation and verbal clitics) incorporates into C^0 via right-adjunction. The structure they propose is given in (36) below.

(36) Verb incorporation into C³³



³² For Rudin et al. (1999) C^0 can host a focus feature that can be checked by *li*. The assumption that *li* is located in C^0 is motivated by the complementary distribution of the interrogative particle with other complementizers, as well as by its interrogative clause typing. Topics, conjunctions and other elements appearing before focus are adjoined to CP. However, as they point out, this account is not incompatible with the views that focus has an independent projection, and *li* is situated in Foc^0 (i.e. Izvorski, 1995).

³³ Rudin et al. (1999), p. 548, ex. (14).

However, the word order resulting from the derivation above displays *li* preceding the verb, which is not acceptable. To avoid this problem, the authors propose that verb incorporation into C^0 is further followed by prosodic inversion, which results in the correct word order. In addition, if a focused element is present (i.e. XP), it raises to SpecCP, where its focus feature is checked by *li*. This configuration also results in the right word order. A direct consequence of such an analysis is that if the prosodic word/domain preceding *li* is not the verbal complex, a *y/n* question will always receive a focus interpretation.

Regarding interpretation, Rudin et al. (1999) assume that Bulgarian *li*-questions are neutral if the verb phrase appears before *li*. They attribute the possibility of co-appearance of *li* and a *wh*-word to *wh*-words being focused elements in *wh*-questions while the rest of the structure is presupposed information. However, they do not discuss whether such a presupposition is the outcome of the focusing of the *wh*-word or if it is related to the interrogative structure itself.

Although Rudin (1997) and Rudin et al. (1999) suggest a possible parallel between *wh*- and *li*-questions as involving focus, two major problems make the syntactic structure presented in (36) unsuitable for a unified semantic analysis of *y/n* questions. Again, an analysis of *li* as a complementizer cannot explain the fact that it does not have scope over the whole interrogative clause. Also, an approach along these lines does not explain why constituent questions can have an overtly filled C^0 in the case of *li*, but no other complementizer can co-occur with a *wh*-phrase. In addition, it is commonly assumed that only XP-*li* questions involve focus, but I will argue in chapter 5 that this is always the case for *li*-questions. In other words, my claim is that all questions with *li* involve focus.

2.3. Bošković (2000, 2002); Franks and Bošković (2001)

Another analysis for the syntactic structure of *y/n* interrogatives has been proposed by Bošković (2001, 2002b), who claims that clitics are non-branching elements that can be either heads or specifiers. He assumes that Bulgarian clitics substituting arguments are specifiers of null heads of separate projections (AgrDO, AgrIO) and the clitic cluster is formed by adjunction to the left instead of right adjunction or prosodic inversion. Bošković's analysis is illustrated in (37).

(37) **Argument clitics ordering in Bulgarian**³⁴:

Petār mi go dade

Petar me·Dat. it·Acc. gave·3p.sg.Aorist

‘Peter gave it to me’

- a) [AGR_{ioP} *mi* [AGR_{io}’ [AGR_{doP} *go* [AGR_{do}’ [VP *dade*]]]]]
- b) [AGR_{ioP} *mi* [AGR_{io}’ *dade*_i [AGR_{doP} *go* [AGR_{do}’ [VP *t_i*]]]]]
- c) [*mi*_i+ [*go*_j+ *dade*_k]] [AGR_{ioP} *t_i* [AGR_{io}’ *t_k* [AGR_{doP} *t_j* [AGR_{do}’ *t_i* [VP *t_i*]]]]]]

Bošković assumes that there is a c-command requirement on overt movement and, as a consequence, clitics cannot incorporate into the verb before it has moved out of the VP (37a). When the verb is in the AGR_{io} head, the accusative clitic can incorporate (37b), whereas the dative clitic can do so only after the verb has moved further up (37c). Importantly, Bošković proposes that the copies of the moved clitics are pronounced if the verb is the first element in the structure, as clitics in Bulgarian exhibit the so called Tobler-Mussafia effect and cannot appear at the beginning of the sentence.

(38) **Tobler-Mussafia effect in Bulgarian:**

X clitics V *clitics*

clitics V clitics

With regards to the interrogative clitic *li*, Bošković (2000) and Franks and Bošković (2001) assume that *li* is a type of interrogative complementizer situated in C⁰. When an element different from the verbal complex is fronted before *li*, these authors assume that such an element is contrastively focused. The order in such cases is straightforward as *li* does not form part of the verbal clitic cluster. However, when the verb complex precedes the interrogative particle, *li* is part of the verbal cluster and its ordering is the result of the verb complex raising into C⁰ in *y/n* questions and the Tobler-Mussafia effect exhibited by Bulgarian clitics.

³⁴ Bošković (2002), p. 335-336, ex. 13-14.

(39) **The interrogative particle *li*:**

- a) *Dade li ti go Petko včera?*
Gave_{3p.sg.Aor.} li you_{Dat.} it_{Acc.} Petko yesterday
'Did Petko give it to you yesterday?'

- b) [_{CP}[_C[~~ti go~~ *dade*] + *li*] [*ti go* ~~*dade*~~ *Petko včera*]

[Franks and Bošković (2001), p. 178, ex. 8b and 9]

Unlike for the rest of the clitics, however, not every lexical word can provide a support for the sentence-initial verbal cluster when *li* is present.

(40) **The conjunction *i* (and) as a support for the clitic cluster**

- a) *I mi go dade Petko včera.*
And me_{Dat.} it_{Acc.} gave_{3p.sg.Aor.} Petko yesterday
'And Petko gave it to me yesterday.'

- b) *I dade li ti go Petko včera?*
And gave_{3p.sg.Aor.} li you_{Dat.} it_{Acc.} Petko yesterday
'And did Petko give it to you yesterday?'

- c) **I ti go dade li Petko včera.*
And you_{Dat.} it_{Acc.} gave_{3p.sg.Aor.} li Petko yesterday
'And did Petko give it to you yesterday?'

[Franks and Bošković (2001), p. 178, ex. 4a and 10]

As the authors point out, the conjunction *i* (and) can serve as a support for the clitic cluster in (40a), whereas this is not the case when the interrogative particle *li* is present, cf (40b) and (40c). Franks and Bošković assume that this is the outcome of multiple Spell Out by phases. They base their proposal on Chomsky (2000) who claims that the derivation is sent to the PF phase by phase; that is, after completing each CP. Thus, the derivation in (40a) must wait for the conjunction *i* ('and') to be merged in order to be sent to SpellOut, as it is only an IP before the conjunction is merged. In contrast, the derivation in (40b) is a full CP and is sent to PF

before the conjunction *i* (and) is merged. Consequently, the copies of the clitics within the verbal complex are pronounced, as shown in (39b).

One problem with an approach along the lines of Bošković (2000, 2002b) and Franks and Bošković (2001) is that it must resort to complex PF stipulations resulting in scattered deletion in order to derive the correct surface order of clitics. Another challenge for this analysis is that it predicts the impossibility of splitting *wh*- and clitic clusters (i.e. adverb interpolation) which is an incorrect prediction³⁵. Lastly, as it has already been proposed by Izvorski (1995), and as will also become clear from the data collected from the experiments described in the following two chapters, *li* is not a complementizer. It heads an independent clause-internal focus projection and this allows all *y/n* interrogatives containing *li* to involve focus. Thus, scattered deletion and multiple Spell Out could not account for the difference between (40a) and (40b), as in both cases the derivation has not completed a phase before the conjunction *i* is merged. In addition, the approach proposed by Bošković (2000, 2002) and Franks and Bošković (2001) does not identify interrogatives where the verb complex precedes *li* as focused. Thus, the theory outlined above does not fully account for the data.

2.4. Franks (2005)

Another technical solution for *li*-placement is put forward by Franks (2005c). In his view, clitics are first ordered preverbally, and *li* is merged above the “clitics + verb” group. Given its enclitic nature, *li* must be pronounced at the right of the first prosodic word to its right. As a consequence, the clitics undergo a reordering merger, resulting in a string of the type “verb + *li*”, illustrated in (41)

(41) **Reordering Merger (RM) with *li***³⁶

- a) [_ω [_{CG} **si mu gi**] pokazvala]] → [_ω pokazvala + [_{CG} **si mu gi**]]
- b) **li** [_ω [_{CG} **si mu gi**] pokazvala]] → [_ω [[_{CG} **si mu gi**] pokazvala] + **li**]]
- c) [_ω [[_{CG} **si mu gi**] pokazvala] + **li**]] → [_ω [pokazvala + **li**]] + [_{CG} **si mu gi**]]
- d) **li** [_ω **ne SI**] [_ω **mu gi** pokazvala]] → [_ω [_ω **ne SI**] + **li**]] [_ω **mu gi** pokazvala]]

³⁵ For details on splitting the *wh*-cluster, and discussion on Lambova’s (2001, 2004) proposals, see section 1.7 in this chapter.

³⁶ The examples are from Franks (2005), p. 15, ex. 38-40. *CG* stands for ‘clitic group’; *ω* stands for ‘prosodic word’.

The example in (41) illustrates the Tobler-Mussafia effect exhibited when the clitics are sentence-initial. In (41b) the interrogative particle *li* is merged above the clitics + verb cluster and undergoes RM, encliticizing to the right of the first prosodic word to its right. As a result, in (41c) the clitics have to undergo RM as well, as they appear to the left of the verb in sentence-initial position. Finally, in (41d) negation and the first clitic following it form a prosodic word, which is the host for cliticizing *li* after RM.

Syntactically, Franks (2005c) considers *li* to be a complementizer, situated in C^0 . With regards to its nature, he distinguishes two types of *li*: (i) an interrogative marker which appears in neutral *y/n* questions (that is when the verb precedes *li*) and (ii) a focus marker which shows the focused element in the structure. The ordering of *li* is derived in the same fashion in both cases. When *li* is an interrogative marker, the first element to its right is the verb³⁷, hence it encliticizes to it in the way illustrated above. In its use as a focus marker, *li* (which heads the CP) is followed by a clause-internal focus phrase (FocP) where the focused element is situated. Consequently, after RM *li* encliticizes to the first prosodic word to its right, i.e. the focused element.

The analysis put forward by Franks (2005c) faces a problem similar to Bošković's view. *Li* is seen as parallel to the rest of the clitics: the only placement discussed for *li* is as following the first prosodic word to its right. However, Franks (2005c) observes the existence of cases when there is more than one prosodic word preceding *li* and it is not necessarily a second position clitic) An example is provided in (42) below.

- (42) *Mnogo truden li izpit si vzel?*
 Very hard Q exam aux_{2p.sg.} took
 'Did you take a VERY HARD exam?'

[Franks (2005), p. 27, ex. 78]

To solve the problem in cases like (42), Franks (2005c) suggests that the whole focused constituent must raise to SpecCP, in addition to RM. If this is the case, however, it is not clear why RM is needed at all if there is material in SpecCP that can support the interrogative enclitic) Another problem arising from this proposal is the need for two different mechanisms (RM and movement to SpecCP) to solve the ordering in *li*. An analysis of this type suggests

³⁷ Franks (2005) follows Izvorski (1995) in assuming that the verb does not raise from T-to-C in *y/n* questions.

that the syntactic derivation – and, in particular in this case, the raising of the focused element from SpecFocP to SpecCP – depends on the number of prosodic words in SpecCP. However, as Franks (2005c) points out at the beginning of his work, “*not only are questions of morphology and prosody ignored by the syntax, but the syntax proper makes no statements about linear order.*”³⁸

Furthermore, Franks (2005c) points out that *li* cannot encliticize to a past participle, which contradicts the data. As Boyadzhiev et al. (1999) indicate, *li* can adjoin to any element in the structure. Thus, Franks’ (2005c) proposal only accounts for the position of *li* in VP-*li* questions, but not for the cases when *li* appears at the end of the sentence or when there is a complex focused element preceding *li*. Finally, his view is problematic for the cases when *li* appears after interrogative words, as the C⁰ must be overtly filled in a *wh*-question. Overall, Franks’ (2005c) proposal not only does not fully account for the data but also faces some theoretical challenges.

2.5. Izvorski (1995) and Lambova (2001, 2004) on *y/n* questions

Having outlined some of the current syntactic analyses of *y/n* questions in Bulgarian, I now return to the two analyses of interrogatives (already presented in more detail in sections 1.6 and 1.7 of this chapter) that account for the widest range of data, and allow for a unified analysis of polar interrogatives in this language. In what follows I briefly survey the approaches of Izvorski (1995) and Lambova (2001, 2004) to *y/n* questions.

Izvorski (1995) distinguishes the syntactic properties of question words from those of relative complementizers. Based on the lack of subject-verb inversion in relative clauses, she proposes that only relative complementizers need to raise to SpecCP. In contrast, question words move to a special focus projection (FP). This approach assumes that focus in Bulgarian projects an independent phrase which is clause-internal, and situated in the highest functional projection of a split IP, in a position lower than the CP. With regards to polar questions, Izvorski distinguishes the position of *dali* from that for the interrogative particle *li*. Based on the lack of subject-verb inversion in *dali*-interrogatives, the author assumes that *dali* is an interrogative complementizer, whereas *li* heads the clause-internal focus projection. The structure proposed for *y/n* interrogatives is repeated in (43):

³⁸ Franks (2005c), p.1.

(43) **Structure of *y/n* interrogatives in Bulgarian³⁹:**

a) [CP C *dali* [FP XP F [...]]]

b) [FP [XP F *li* [...]]]

Izvorski claims that *li* is generated in F(ocus)⁰ and has a [+Q] feature. Similarly to Rudin et al. (1999), Izvorski distinguishes VP/IP-*li* questions from interrogatives where an element different from the verb precedes *li*. When no element is focused, the verb complex undergoes head movement to F⁰ to check its focus feature⁴⁰. If a phrase different from VP/IP is focused, it moves to SpecFP to check its focus feature. As mentioned earlier, a main assumption under this view is that in Bulgarian *y/n* questions, the verb does not need to raise to C⁰, but remains in I⁰. In addition, subjects do not need to raise to SpecIP unless focused. Since the focus phrase headed by *li* is the highest functional projection in a split IP, the analysis explains why preverbal subjects are unacceptable in an XP-*li* question but grammatical in *dali*-questions. This approach also allows for the co-occurrence of a *wh*-phrase and the interrogative particle *li*, without the need to postulate that Bulgarian can have an overtly filled C⁰ in constituent questions. At the same time, the proposed structure bans the interrogative word *dali* from appearing in *wh*-interrogatives. With regards to the objectives of this dissertation, such an approach provides a suitable structure for a unified analysis for all interrogatives in Bulgarian; furthermore, it explains the effects of focus in both *wh*- and *y/n* interrogatives.

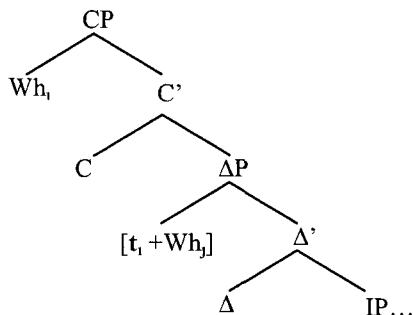
The second proposal allowing for a unified analysis of interrogatives was put forward by Lambova (2001, 2004). She studies mainly constituent questions and claims that Bulgarian has an independent focal projection (Δ P), which is situated below C⁰ and licenses both topic and focus. Topicalized phrases are adjoined to this projection, and are thus situated above Δ ⁰ but below C⁰. Lambova also assumes that all *wh*-elements move to Spec Δ P, since they are focused elements and in Bulgarian all focused elements have to be fronted. Furthermore, Lambova assumes that only one *wh*-phrase raises to SpecCP, checking the interrogative feature of C⁰, whereas the rest of the interrogative words remain adjoined to Spec Δ P. Such a configuration has the advantage of accounting for the possibility of splitting the *wh*-cluster. It

³⁹ Izvorski (1995), p. 64, ex. 32.

⁴⁰ Izvorski does not discuss why this is so, but one possible explanation is that the verb is in the highest position, therefore the closest element to F⁰. Recall that in this approach the verb does not undergo T-to-C raising in *y/n* interrogatives and the subject remains within the VP, unless it is focused.

can also easily accommodate the structure of *y/n* interrogatives defended by Izvorski (1995). The structure proposed by Lambova is repeated in (44).

(44) **Structure of MWh: (Lambova, 2001)**



This analysis predicts that the *wh*-cluster can be split only after the first *wh*-word. Thus, topicalized material can appear between the two levels of the *wh*-cluster, adjoining higher to ΔP rather than in the lower part of the *wh*-cluster. However, not all topicalized elements can appear in the middle of the *wh*-cluster. Lambova proposes that Bulgarian has a PF requirement for topicalized verbal arguments to appear before all *wh*-words. In such a case the copy of the first *wh*-element is pronounced instead of the head of the chain⁴¹.

As I have already discussed, a syntactic structure of *y/n*-questions in Bulgarian combining the proposals put forward by Izvorski (1995) and Lambova (2001, 2004) is the most suitable alternative for a unified semantic analysis of questions.

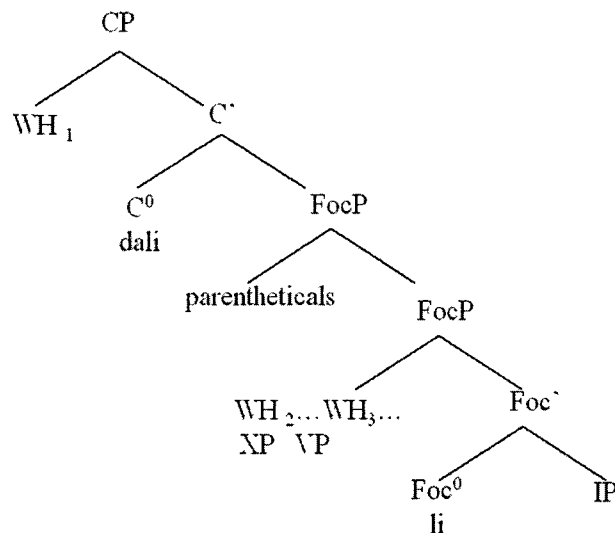
3. A new derivation for Bulgarian questions

In my view, a syntactic structure of questions in Bulgarian based on the proposals put forward by Izvorski (1995) and Lambova (2001, 2004) is the most suitable one for a unified analysis of questions and it also provides the right syntactic configuration to accommodate the data. In addition, I believe that polar and constituent interrogatives must have parallel syntactic structures, as they share many semantic similarities. This work will advocate for a unified structure for interrogatives in Bulgarian on the basis of the results from the two experiments described in the following two chapters. I build on the work by Izvorski (1995) and Lambova (2001, 2004). I take on their view that Bulgarian has a clause-internal focal position which is

⁴¹ For more details, see the discussion on Lambova in section 1.7.

situated below C^0 . I also take *li* to be a focus-sensitive question operator with [+Q] and [+Foc] features. This accounts for the fact that *li* is always associated with focus and cannot appear in declarative sentences due to its interrogative feature⁴². I take the traditional view on *dali* as an interrogative complementizer and I assume that *wh*-words in Bulgarian raise to the specifier position of the focal phrase⁴³ to check their [+Foc] features. Finally, I also assume that the highest animate⁴⁴ *wh*-word is able to move to SpecCP to satisfy the [+Q] feature of C^0 . In the case of *y/n* interrogatives the [+Q] requirement of C^0 is satisfied by the selection of overt interrogative elements: *dali* or *li* respectively, depending on the type of the questions and the context. To summarize, I propose the following syntactic structure for interrogatives in Bulgarian.

(45) **Structure of Bulgarian interrogatives:**



⁴² In fact, *li* can appear in conditionals, which might seem surprising at first, as *li* cannot appear in declaratives, since it is clearly an interrogative element. However, the relation between interrogatives and conditionals has long been noticed. Harman (1979) is among the first to discuss the connection between interrogative and conditional *if* in English, and Kayne (1991) argues that conditional and interrogative *if* are the same element and share the same features. In addition, certain *wh*-relatives can be interpreted as conditionals (see Haegeman, 2003 and Starr, 2009 for an insightful discussion on the syntax and semantics of conditionals). Moreover, it has been claimed in the literature that interrogative adjunct clauses are interpreted as conditionals (Bhatt and Pancheva, 2006). Thus, it is not surprising that *li* can appear in conditionals, since functional elements with interrogative features are allowed in this particular type of declaratives. Finally, I take declaratives containing a *wh*-word, *li* and negation (*kakvo li ne...*) to be an example of a rhetoric question, thus containing a [+Q] feature on C^0 which would allow the presence of both the interrogative word and *li*.

⁴³ I will not use Lambova's label of such a projection, as I do not assume that focused and topicalized constituents share the same landing site. Instead, I will use the label FocP to be consistent with the corresponding feature and to clearly indicate that this is a position related to Focus and focused elements.

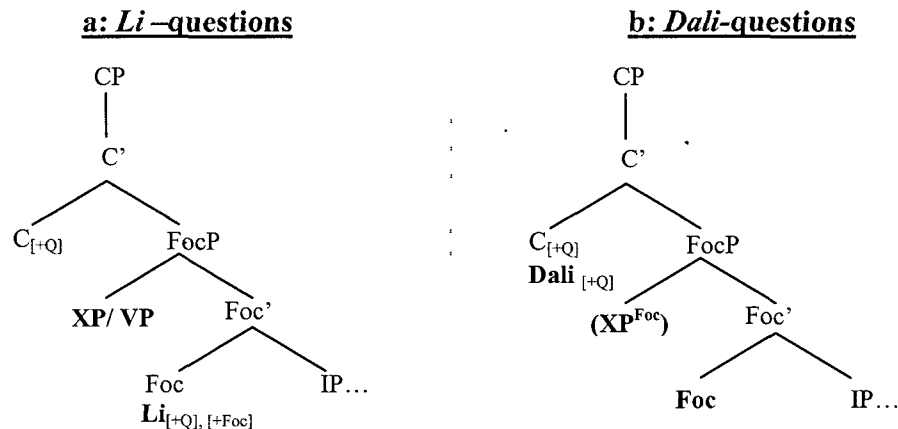
⁴⁴ This assumption is reflecting the fact that it has been reported in the literature (Rudin, 1986, 1988; Billings and Rudin, 1994) that there is a preference for animate *wh*-elements to appear before inanimate ones.

The derivation presented in (45) is a combination of the analyses proposed by Izvorski (1995) and Lambova (2001, 2004). It allows for the accommodation of the data presented by both authors. What is more, it provides a unified structure for all types of interrogatives in Bulgarian and correctly predicts the possibility of the interrogative particle *li* to appear in *wh*-questions, in contrast to the interrogative complementizer *dali*. Contrary to Lambova's analysis, topicalized and focused elements are not hosted by the same functional head. I adopt the traditional view that topics are adjoined to SpecCP. Consequently, topics must always precede *wh*-elements. This is a desired outcome, as there is no need for complex phonological stipulations requiring the pronunciation of the lower copy of the chain. Contrary to Izvorski's proposal, I adopt Lambova's idea that the highest *wh*-element does not remain in SpecFP, but raises to SpecCP. Such movement correctly predicts the possibility of splitting the *wh*-cluster. As I will show later, it also predicts the right order of the *wh*-elements, a problem that Izvorski and Lambova's analyses do not discuss.

The structure outlined in (45) has several advantages. On the one hand, it provides a unified syntactic derivation for constituent and polar questions. On the other hand, it allows explaining the phenomena discussed to this point: the possibility of splitting the *wh*-cluster; hierarchy between *wh*-elements; and direct correlation between focus feature and *wh*-words. Apart from the theoretical advantages that the structure in (45) entails, it also receives support by means of two experiments (reported in the next two chapters) designed to test this derivation. The results from both experiments strongly support the hypothesis that not all *wh*-elements raise to the same final projection and that the *wh*-cluster can be split after the first *wh*-element. Thus, the structure proposed provides two landing sites for *wh*-phrases. The proposal that the lower one is the specifier position of the FocP captures the results obtained in both experimental studies to the effect that *wh*-elements that are not raised to SpecCP do not need to comply with the Superiority restriction. In addition, since the co-occurrence of one or more *wh*-elements and the interrogative particle *li* proved to be highly acceptable only with *li* following all *wh*-phrases, in the proposed analysis both landing sites for *wh*-fronting must precede the projection headed by *li*. At the same time, given that only the interrogative word *dali*, but not the particle *li* is considered to be a complementizer in the proposed analysis, the structure above bans the presence of *dali* in constituent questions. The positioning of *li* as a head of the clause-internal focus projection indicates its focus-related nature, allowing *li* to adjoin only to focused elements in the clause. At the same time, it permits all types of focused

elements to precede *li*, thus reflecting the possibility for *li* to adjoin to every prosodically prominent element in the structure. The structures of the two types of *y/n* interrogatives are illustrated in (46a) and (46b).

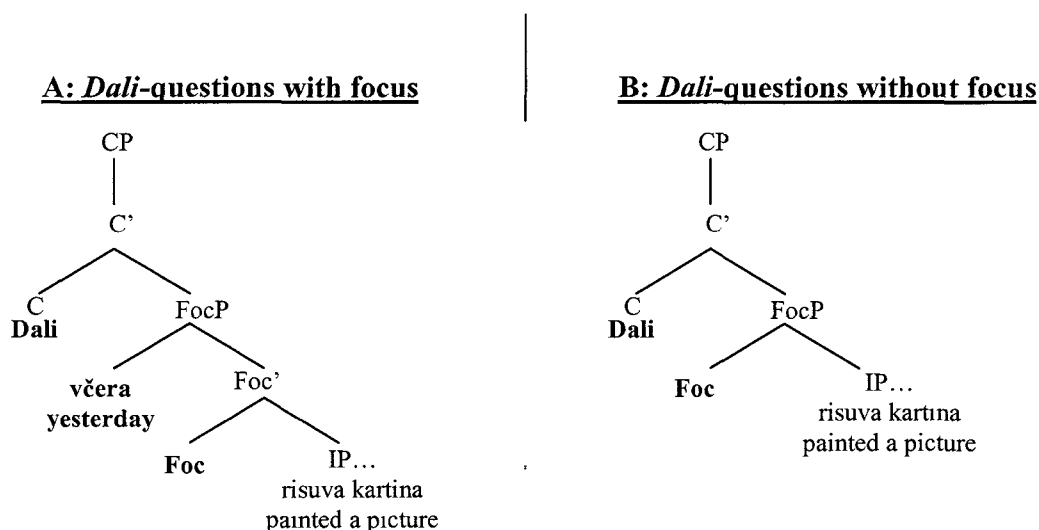
(46) Structure of *y/n* interrogatives in Bulgarian:



The structures illustrated in (46a) and (46b) are very similar, yet there are a few fundamental differences in the positioning of the two interrogative words. First, given that *li* in (46a) heads a special focus projection, it does not need to have scope over the whole clause, but only over the material moved to its specifier position. In contrast, *dali* in (46b) heads the sentence which allows it to take scope over the entire clause. This results in a configuration similar to English *y/n* interrogatives (e.g. [_{CP} [_C Q_{op} [_{IP}...]]]). Second, the fact that *dali* is situated in C⁰, above FocP, accounts for the possibility of having a focused element in *dali*-questions following the interrogative complementizer. However, as *dali* is a complementizer, it would normally have scope over the whole clause. Third, the fact that *li* heads the focal projection correctly predicts the behavior of *li*-questions as necessarily involving focus, in contrast to *dali*-questions where focused elements are optional. Finally, I believe that the complementizer head in Bulgarian is of the type *attract-one* and it can host only one (the highest animate) *wh*-element (45). This automatically predicts that C does not need more than one element to check its interrogative feature. Consequently, as both *dali* and *li* have [+Q] features, they cannot co-occur, unless in an echo-question. Such a prediction is borne out by the data⁴⁵.

⁴⁵ As already mentioned, I assume that echo-questions involve two CP projections. Thus, *dali* will head the matrix C⁰, whereas the rest of the clause is in the echo-part, where *li* heads the Foc⁰.

(47) Dali-questions with (a) and without (b) a focused element:



The structures in (47a) and (47b) illustrate *dali*-questions that contain (47a) or do not contain (47b) a focused element. In the first case, the focused element has been moved from its original position to SpecFocP, to check its focus feature. In the second case, SpecFocP is empty (thus it does not project), as there is no focused element that needs to be fronted.

In addition, this structure allows for the possibility of having a split *wh*-cluster or a sentence-initial topicalized element, illustrated in (48) and (49), respectively.

(48) Split *wh*-cluster

- a) *Koj prāv kakvo e xvārlil?*
 Who first what Aux. thrown
 ‘Who threw what first?’

- b) $[_{CP} Koj_i [C [_{FocP} prāv [_{FocP} [t_i kakvo_j [_{Foc} [IP t_i [I e [VP t_i [v xvārlil t_j]]]]]]]]]]$

(49) Sentence-initial topic

- a) *Decata koj kāde vidja?*
 Kids-the who where saw_{3p sg Aorist}
 ‘About the kids, who saw them where?’

- b) $[_{TopP} Decata_i [_{Top} [_{CP} koj_j [C [_{FocP} t_j kāde_l [_{Foc} [IP t_j [I vidja_k [VP [VP t_j [v t_k t_i]]] t_l]]]]]]]]]$

The examples in (48) illustrate the possibility of splitting the *wh*-cluster in Bulgarian. All *wh*-words raise first to SpecFocP to check their focus features. Focused adverbs or parentheticals adjoin to SpecFocP. Finally, the highest animate *wh*-element moves to SpecCP. The examples in (49) illustrate the possibility of having a sentence-initial topicalized element that precedes all *wh*-words. In this particular structure, I assume that the topicalized element has moved from within the clausal structure to its sentence-initial position, above CP. However, it has been proposed in the literature that topics can be analyzed as base-generated in the position in which they appear. Either approach to the syntax of topics can fit the proposed structure. The important point is that sentence-initial topics are placed above SpecCP. If the following *wh*-word is an animate one, it raises to SpecCP, as *koj* (who) in (49b). If the *wh*-word is inanimate, it remains in SpecFocP, as the adjunct *kāde* (where) in (49b). The topicalized element sits in SpecTopP (above CP), thus preceding the highest *wh*-element which has moved to SpecCP.

Finally, the fact that *li* heads the focus projection shows that it is different from the rest of the verbal clitics. On the one hand, *li* does not need to be part of the verbal clitic cluster and does not need to behave as the rest of the clitics. On the other hand, *li* contributes a particular meaning to the whole clause. It has a [+Q] feature which is able to type the clause. In addition, *li* indicates the focused element in the structure. In contrast, the other verbal clitics can substitute an argument of the verb or they are auxiliary or negation which affects only the nature of the event, but not the clause as a whole. Consider the examples below comparing *li* to other verbal clitics.

(50) **Li and the other clitics in Bulgarian**⁴⁶:

a) **Clitic order in simple *v/n* question with *li*:**

<i>Dade</i>	<i>li</i>	<i>mu</i>	<i>go?</i>
Gave _{3p.sg.}	li	him _{Dat.}	it _{Acc.}

‘Did you give it to him?’

b) **Clitic order in simple declarative with negation:**

<i>Ne</i>	<i>mu</i>	<i>go</i>	<i>dade.</i>
Neg	him _{Dat.}	it _{Acc.}	gave _{3p.sg.}

‘You didn’t give it to him.’

⁴⁶ For convenience, the clitics in the examples below are presented in **bold**.

c) **Clitic order in simple negative y/n question:**

Ne mu li go dade?
 Neg him_{Dat.} li it_{Acc.} gave_{3p.sg.}
 ‘Didn’t you give it to him?’

d) *Ne mu go dade li?*
 Neg him_{Dat.} it_{Acc.} gave_{3p.sg.} li
 ‘Did you not give it to him?’

e. **Clitic order in negative y/n questions does not parallel that of positive ones:**

**Ne li mu go dade?*
 Neg li him_{Dat.} it_{Acc.} gave_{3p.sg.Aor.}
 ‘Didn’t you give it to him?’

f. **Li is part of the main clause:**

Ivan pita li dali mu go dadoh?
 Ivan asked li whether him_{Dat.} it_{Acc.} gave_{1p.sg.Aor.}
 ‘Did Ivan ask whether I gave it to him?’

The examples above illustrate the fact that *li* does not have the same properties as other clitics. Normally, *li* precedes the rest of the clitics within the verbal clitic cluster⁴⁷ if they belong to the same clause (50a). The same is expected to be valid for negative declarative sentences as well. Interestingly, negation in Bulgarian is a verbal proclitic but when the verbal clitics are present, they intervene between negation and the verb, as in (50b). In this configuration the first clitic from the cluster has to be stressed⁴⁸. Nonetheless, in negative *li*-questions, *li* cannot appear at the beginning of the clitic cluster, [cf (50c) and (50e)], whereas any other clitic - auxiliary or nominal - can. This contrast shows that *li* has different phonological requirements than the rest of the clitics. Also, depending on the meaning of the clause, *li* can appear at the end of the sentence, separated from the rest of the clitics, as in (50d)⁴⁹. In addition, in complex

⁴⁷ Clitics within the NP/DP will be disregarded, since they are irrelevant to the present discussion.

⁴⁸ For more details on the prosody of this structure, see e.g. Rudin et al. (1999).

⁴⁹ It is important to note here that the readings resulting from the two possible positionings of *li* are different. In the first case (50), the reading corresponds to that of English polar questions with inverted negation. In the second

sentences *li* typically appears in the matrix clause, whereas the rest of the clitics remain in the embedded clause (50f). Therefore the paradigm in (50) suggests that *li* needs to have a ‘special status’ among the clitics, due to the following three facts: (i) it can separate from the clitic cluster; (ii) it contributes special meaning to the whole clause; and (iii) it has different phonological requirements.

In summary, in this chapter I reviewed different generative approaches to Bulgarian interrogatives and I showed that they face certain challenges. I therefore proposed a novel unified syntactic structure of Bulgarian interrogatives that overcomes the problems outlined above. Based on the data on *wh*- (in particular Rudin, 1986, 1988) and polar questions described in the literature, and building on the proposals by Izvorski (1995) and Lambova (2001, 2004), I propose a unified derivation for interrogatives in Bulgarian. In such a structure all *wh*-elements first raise to a clause-internal focus projection situated below CP to check their [+Foc] feature. The *wh*-cluster can be split after the first *wh*-element, since only the highest animate *wh*-phrase raises to SpecCP. I follow the traditional view that the interrogative word *dali* is a complementizer, and thus heads CP. Following Izvorski (1995), I further assume that the interrogative particle *li* heads the focus projection. I take this particle to be focus-sensitive and to have a [+Foc] and a [+Q] features. The structure outlined in this chapter can account for all types of interrogatives in Bulgarian. In addition, it brings together the focus-related nature of *wh*-elements and their discourse prominence. What is more, it provides an explanation for the different semantic properties of the two types of polar questions in Bulgarian. Finally, the proposed derivation provides two landing sites for *wh*-fronting, which accounts for the possibility of splitting the *wh*-cluster and of having a hierarchical ordering between *wh*-elements.

In the next two chapters, I present two paper-and-pencil sentence judgment tests, whose goal was to find the preferred forms of multiple *wh*-interrogative in Bulgarian. These experiments provide new insights into the data discussed in the literature to this point and are also designed to help define the most suitable syntactic structure for Bulgarian interrogatives.

case, (50d), the reading corresponds to English polar questions without inverted negation. I will return to this difference in chapter 5, which is dedicated to the semantics of polar questions.

CHAPTER III

EXPERIMENT 1

1. Experiment 1. The problem

As has become clear from the previous chapter, the order of *wh*-elements in Bulgarian has not received a unified account to this point. Slavic linguists have put forward a range of analyses, proposing that there are different factors influencing the order of *wh*-elements at the beginning of the clause. Animacy and dialectal variation (Rudin, 1986, 1988); a set of OT constraints based on the animacy and the discourse prominence of the *wh*-element (Billings and Rudin, 1994); the Principle of Minimal Compliance (Richards, 1998, 2001); the type of movement – *Move* versus *Attract* (Bošković, 1998, 2002a); and the place of movement, SpecCP versus SpecFocP (Izvorski, 1995 and Lambova, 2001, 2004) are considered to be among those factors. To the best of my knowledge, none of the studies outlined above has fully accounted for the Bulgarian data. Different authors contradict each other's claims, which are often based on different types of data. Importantly, no native speakers' judgments study is reported in the literature.

In the literature on multiple *wh*-questions in Slavic, the type and place of movement of *wh*-phrases have typically been among the major syntactic topics under debate. Another very problematic feature of multiple *wh*-fronting is the frequent, but not always systematic, violation of the Superiority restriction. In the syntactic literature, it has been independently proposed that the addition of a third *wh*-phrase ameliorates the status of a multiple *wh*-question violating Superiority in languages like English (Kayne, 1983)⁵⁰.

- (1) a) *I'd like to know where who hid it.
b) *I'd like to know what who hid there.
c) ?I'd like to know where who hid **what**.
d) ?I'd like to know what who hid **where**.

⁵⁰ Kayne (1983), p. 235, ex. 34-35.

In psycholinguistics this effect was examined by Clifton, Jr. Et al. (2006). Specifically, they investigated whether the addition of a third *wh*-phrase had a real amnestying effect on the Superiority restriction. The authors used a half-hour speeded sentence judgment task. Conditions containing both arguments and adjuncts were used. The items were as follows:

- (2) a) **Who** can do **what** about it?
- b) **Who** can do **what** about it **when**?
- c) **Who** can do **what** about it, and **when**?
- d) **What** can **who** do about it?
- e) **What** can **who** do about it **when**?
- f) **What** can **who** do about it, and **when**?

The authors found that the addition of a third *wh*-phrase has a certain ameliorating effect on the acceptability of multiple interrogatives violating Superiority. However, they point out that “it is certainly a minor factor, comparable in impact to the mild increase in complexity brought about by adding a third *wh*-element. The data certainly do not encourage the view that the third *wh* actually amnesties the Superiority violation.”⁵¹ Therefore, it cannot be concluded that Superiority is a restriction which can be easily cancelled. It is rather a foremost principle in languages that obey such a condition. Consequently, if a language obeys Superiority, the number or nature (argument/adjunct) of *wh*-phrases cannot significantly impact the acceptability of multiple *wh*-questions.

The study by Clifton Jr. et al. (2006) was designed for English data specifically and its goal was the validation of the key syntactic principle Superiority for current theory.

The experiment presented in this chapter was created specifically for Bulgarian, a language where Superiority effects have been debated at length and shown to be controversial, as described in the previous section. The goal of the experiment described below was to collect native speakers’ judgments on various types of multiple *wh*-questions in this language in order to investigate their preferences for ordering of question words. To this effect, the number of *wh*-phrases in the target sentences was kept constant and only the order of the *wh*-elements was altered. Another objective of the study was to discover the preferred syntactic

⁵¹ Clifton Jr. et al. (2006), p. 60-61.

structure for multiple *wh*-interrogatives. The experiment aimed to answer the following questions:

- i. What is the preferred order of *wh*- elements at the beginning of the clause?
- ii. What are the consequences of altering the preferred order of *wh*-words?
- iii. What is the optimal syntactic structure for Bulgarian interrogatives that can be hypothesized in view of the results of the experiment?

A paper-and-pencil test was designed to obtain native speakers' judgments for multiple *wh*-questions in Bulgarian. In particular, the experiment focused on the contrast between the cases where Superiority is violated vs. those where it is obeyed. Since it has been suggested that both the syntactic position and the animacy feature of the argument may play a role in the ordering (Rudin, 1986, 1988; Billings and Rudin 1994; Pesetsky, 2000), *wh*-phrases were divided into several groups: internal vs. external arguments; animate vs. inanimate arguments and arguments vs. adjuncts. Finally, several types of fillers were added with the intention to verify the preferred syntactic derivation for multiple *wh*-interrogatives.

2. Method

2. 1. Subjects

Eighty five native speakers of Bulgarian aged 18 to 50 participated in this study. They were recruited at the University of Sofia (Bulgaria), the New Bulgarian University in Sofia, and the Centertown Communities of the cities of Sofia and Stara Zagora. Their participation was voluntary.

2. 2. Stimuli

Eight different types of conditions were used, separated into groups, depending on the type and combination of *wh*-words at the beginning of the question. The stimuli were divided into three main types, as follows:

A. Items where the two *wh*-expressions were an external and an internal argument respectively (*Who watches what on TV?*);

B. Items where both *wh*-expressions were internal arguments (*What did you give to whom?*);

C. Items where the two *wh*-words were an adjunct and an argument respectively (*Who goes where for the vacation?*).

The three types of conditions were further divided into subgroups based on the animacy feature of the arguments. Each condition had two variants: one where the order of the two *wh*-words obeyed Superiority and one in which the Superiority condition was violated. All types of conditions are presented below. The examples in (a) show the version of the sentence that obeys the Superiority restriction and those in (b) illustrate the one that violates it. Both versions share the same intended interpretations:

A. EXTERNAL + INTERNAL ARGUMENT⁵²

(3) External animate & internal inanimate

a) *Koji kakvoј kazvaš če ti redovno gleda tj*
 Who what say_{2p.sg. pres.} that regularly watch_{3p.sg. pres.}
po kanal edno?
 on channel one
 ‘Who do you say regularly watches what on channel one?’

b) *Kakvoј koji kazvaš če ti redovno gleda tj*
 What who say_{2p.sg. pres.} that regularly watch_{3p.sg. pres.}
po kanal edno?
 on channel one

⁵² There were no conditions with inanimate external and internal arguments, since this would lead to a repetition of the same *wh*-word at the beginning of the question, which is unacceptable.

(4) **External animate & internal animate**

- a) *Koji kogoj se znae će t_i pobeždava t_j na karti?*
Who whom Refl. knows that beats_{3p.sg.pres.} on cards
'When people are playing cards, does one know who beats whom?'

- b) *Kogoj koji se znae će t_i pobeždava t_j na karti?*
Whom who Refl. knows that beats_{3p.sg.pres.} on cards

(5) **External inanimate & internal animate**

- a) *Kakvo_i kogoj si čul će t_i neočakvano e udarilo t_j*
What whom Refl heard that unexpectedly Aux. hit_{3p.sg.past}
po vreme na mača?
on time of game

'What did you hear unexpectedly hit whom during the game?'

Declarative: 'You heard that a ball hit Peter.'

- b) *Kogoj kakvo_i si čul će t_i neočakvano e udarilo t_j*
What whom Refl heard that unexpectedly Aux. hit_{3p.sg.past}
po vreme na mača?
on time of game

B. TWO INTERNAL ARGUMENTS

(6) **Inanimate & animate**⁵³

- a) *Kakvo_i na kogo_j ne vjarvaš če često kupuvam t_i t_j*
What to whom Neg believe_{2p.sg.pres.} that often buy_{1p.sg.pres.}
ot vašija magazin?
from your store

‘What do you not believe that I often buy for whom from your store?’

Declarative: ‘You do not believe that I often buy candy for Mary in your store.’

- b) *Na kogo_j kakvo_i ne vjarvaš če često kupuvam t_i t_j*
To whom what Neg believe_{2p.sg.pres.} that often buy_{1p.sg.pres.}
ot vašija magazin?
from your store

(7) **Two internal animate arguments**

- a) *Koji na kogo_j predpolagaš če sadijata prisādi t_i t_j*
Who to whom suppose_{2p.sg.pres.} that judge-the adjudicated
na procesa včera?
on lawsuit-the yesterday

‘Who do you think the judge adjudicated to whom at yesterday’s lawsuit?’

Declarative: ‘Yesterday at the trial, the judge adjudicated the child to his mother.’

- b) *Na kogo_j koji predpolagaš če sadijata prisādi t_i t_j*
To whom who suppose_{2p.sg.pres.} that judge-the adjudicated
na procesa včera?
on lawsuit-the yesterday

⁵³ In the declarative order the inanimate argument typically precedes the animate. Thus, there was no condition type in which the underlying declarative order corresponded to an animate internal argument preceding the inanimate internal one.

Dadox knjigata na Elena.
Gave_{1p.sg.Aor.} book-the to Elena
‘I gave the book to Elena.’

(8) **Two internal inanimate arguments**⁵⁴

- a) *Kakvo_i s kakvo_j predpolagaš če dostavčikāt snabdjava*
What with what suppose_{2p.sg. pres.} that deliverer-the supplies
t_i t_j vsjaka sedmica?
every week

‘What do you suppose the delivery guy supplies with what every week?’

- b) S *kakvo_j kakvo_i predpolagaš če dostavčikāt snabdjava*
With what what suppose_{2p.sg. pres.} that deliverer-the supplies
t_i t_j vsjaka sedmica?
every week

C. ARGUMENT + ADJUNCT⁵⁵

(9) **External animate argument & adjunct**

- a) *Koji kade_j misliš če t_i šte xodi t_j na počivka ljatoto?*
Who where think_{2p.sg. pres.} that will go on vacation summer-the
‘Who do you think will go where for a summer vacation?’

- b) *Kade_j koji misliš če t_i šte xodi t_j na počivka ljatoto?*
Where who think_{2p.sg. pres.} that will go on vacation summer-the

(10) **Internal animate argument & adjunct**

- a) *Kogo_i kade_j si razbral če tvojata sasedka e sreštnala*
Whom where Refl. knew_{2p.sg.} that your neighbour Aux. met
t_i t_j тази сутрин?
this morning

‘Who did you know that your neighbour met where this morning?’

⁵⁴ Note that the example in (b) involves a repetition of the same interrogative form, as both arguments are inanimate.

⁵⁵ For the purposes of this study, I assume that normally the argument (both external or internal) precedes the adjunct, since I use a locative adjunct that is typically added at the end of the sentence. However, since locatives can also appear at the beginning of the clause, the results of these items can receive a double interpretation. I will return to this in the results and discussion sections.

- b) *Kādej kogo_i si razbral če tvojata sāsedka e sreštnala*
 Where whom Refl. knew_{2p sg} that your neighbour Aux. met
t_i t_j тази сутрин?
 this morning

Overall, there were a total of eight subtypes of conditions. Three items of each condition subtype were used. Stimuli were divided into two lists using the Latin square design and items from each pair were split. Thus, a participant saw either the Superiority obeying or the violating item, but never both. A total of 24 target sentences were used in each version of the test. The stimuli were randomized, such that sentences of the same group or type did not appear together or close to one another.

In addition, 26 filler sentences were added. The fillers contained multiple *wh*-questions with three *wh*-words with split and non-split *wh*-cluster, *wh*-questions containing the interrogative particle *li*, negative and alternative *y/n* questions, relative and declarative sentences, and a few short dialogues. The selection of the fillers for this experiment was intentional. Fillers served several purposes. Some of them were used as control sentences, functioning as a base for comparison to judge the acceptability of the rest of the fillers and items, while others were selected so that they could bring evidence for the preferred syntactic structure of *wh*-questions in Bulgarian. Below, I briefly present the fillers relevant to the hypotheses discussed above.

(11) **Unacceptable control sentences**

- a) **Li Ivan ne xodi nikoga na počivka?*
 Q Ivan Neg goes never to vacation
 Intended meaning: ‘Does Ivan never have a vacation?’
- b) **Kogo kāde ne Marija vižda?*
 Who where Neg Maria sees
 Intended meaning: ‘Who does Maria not see where?’

The examples above were used as unacceptable control sentences, as the interrogative particle *li* in (11a) and the negation in (11b) are misplaced.

(12) **Multiple *wh*-questions with added interrogative particle *li***

a) *Koj kogo li e vidjal na тази srešta?*
Who whom Q Aux. seen at this meeting

‘Who could have possibly seen whom at this meeting?’

b) *Kogo koj li e vidjal na тази srešta?*
Whom who Q Aux. seen at this meeting

‘Who could have possibly seen whom at this meeting?’

The addition of this type of filler aimed to verify the possibility of co-occurrence of the interrogative particle *li* with two *wh*-words. It also intended to test whether in such co-occurrence the *wh*-elements are treated purely as focus or if they still preserve their interrogative features.

(13) **Topicalized/focused phrase in a *wh*-question with added interrogative particle *li***

a) *Za Pariž koga trāgva Ivan li?*
For Paris when leaves Ivan Q

‘About Paris, you want to know when Ivan leaves for there.’

b) *Koga trāgva Ivan_F li za Pariž?*⁵⁶
When leaves Ivan Q for Paris

‘Is Ivan the one for whom you want to know when he leaves for Paris?’ / ‘When does IVAN leave for Paris?’

These fillers test the co-occurrence of a topic or an additional focus in *wh*-questions containing the interrogative particle *li*. The fillers aimed to test the positioning of the *wh*-word in the derivation, e.g. SpecCP or SpecFocP.

⁵⁶ The F indicates the focused element.

(14) **Split vs. non-split *wh*-cluster**

a) *Koj verovatno kade koga e zaminal na počivka?*
Who probably where when Aux. left_{p,p.3p.sg.masc.} on vacation
'Who has probably gone where and when on a vacation?'

b) *Koj kade koga verovatno e zaminal na počivka?*
Who where when probably Aux. left_{p,p.3p.sg.masc.} on vacation
'Who has probably gone where and when on a vacation?'

This type of filler was added with Lambova's (2001, 2004) proposal in mind. It was designed to test if splitting of the *wh*-cluster is acceptable, as well as to bring evidence of the preferred syntactic structure of *wh*-interrogative in Bulgarian.

In summary, 24 target sentences were used for the experiment. In addition, 26 filler sentences were used. The purpose of the target sentences was to provide evidence about the preferred order of the *wh*-elements at the beginning of the clause. The fillers were included with the intention to shed light on the syntactic structure of multiple interrogatives in Bulgarian.

Participants were instructed to rate all sentences on an acceptability scale ranging from 1 to 4, where 1 was the lowest and 4 was the highest score. The instructions required that the participant rate a sentence with **1** if the sentence was fully unacceptable; with **2** if the sentence was acceptable, but only in a specific context/situation; with **3** if the sentence was acceptable, but there could be a better way to express the same; and with **4** if the sentence was fully acceptable and this was the best way to say it. Furthermore, if the participants had rated a sentence with 2, they were asked to give an acceptable example of the same sentence in an appropriate context. If they had rated it with 3, they were asked to write the version that they considered a better paraphrase of the same sentence. The goal of this production task was to make sure that participants understood the examples as they were originally intended and to further examine the preferred sentence structures.

2.3. Procedure

On a questionnaire, the four grading options appeared after each sentence. The participants were instructed to circle the number that they considered adequate to grade the sentence. The numbers were followed by a blank space where the participants could write the appropriate context or paraphrase. The instructions were to rate the sentences based on their acceptability in everyday use.

3. Predictions

3.1. Different analyses predict different results

Let's see how the possible results of this test would correlate with some of the analyses for multiple *wh*-questions in Bulgarian reviewed in the previous chapter.

3.1.1. *Superiority as a main principle of ordering of wh-phrases*

Under the hypothesis that the order of *wh*-phrases is constrained by Superiority only, a significant difference between the two versions of the sentences of each type is expected. Thus, the sentences in the (a) versions of the items would be expected to always be rated significantly higher than the ones in the (b) versions. The same would occur in all three types of conditions (A: an external and an internal argument; B: two internal arguments; and C: an argument and an adjunct). This type of result would demonstrate that the Superiority restriction is strictly followed in this language, independently of the argument nature or animacy features of the arguments.

In addition, it has been traditionally assumed that all *wh*-phrases move to the same position (SpecCP⁵⁷). Thus, it would be expected that fillers where the *wh*-cluster is not split (e.g. (16) below) would also be rated significantly higher, as long as the order of *wh*-phrases obeys the Superiority condition, e.g. (15).

⁵⁷ The possible outcome discussed below would also be compatible if *wh*-elements move to SpecFocP, as proposed by Izvorski (1995).

(15) **Split *wh*-cluster**

Koj *verojatno* *kāde* *koga* *e* *zaminal* *na* *počivka?*
Who probably where when Aux. left_{p.p.3p.sg.masc.} on vacation?
'Who has probably left on a vacation where and when?'

(16) **Non-split *wh*-cluster**

Koj *kāde* *koga* *verojatno* *e* *zaminal* *na* *počivka?*
Who where when probably Aux. left_{p.p.3p.sg.masc.} on vacation?
'Who has probably left on a vacation where and when?'

Thus, if Superiority is strictly observed in Bulgarian and if all *wh*-phrases have moved to the same functional projection, the sentence in (15) would be rated significantly worse than the one in (16). In addition, there should be no significant difference between fillers like the one in (15) and the completely unacceptable control sentences. Such an outcome would support the views put forward by Rudin (1986, 1988), who suggests that all *wh*-phrases adjoin to SpecCP and obey Superiority, and Izvorski (1995), who claims that all *wh*-words raise to SpecFocP.

Results which support the hypotheses that Superiority is the main constraint when ordering *wh*-phrases and that the *wh*-cluster cannot be split would also be compatible with Bošković (1998, 2002a), who assumes that all *wh*-elements raise to SpecCP, where the highest one checks the interrogative feature of the complementizer and the rest move to satisfy their focus feature. Results of this type would bring evidence against the analyses offered by Lambova (2001, 2004), who suggests that the first *wh*-word moves to SpecCP, whereas the rest remain in SpecΔP. In her view, this is illustrated by the fact that the *wh*-cluster can be split by parentheticals and topicalized adverbs. If, however, the example in (15) is rated as good as that in (16), or at least significantly different from the unacceptable control conditions, this could support Lambova's theory that all *wh*-phrases do not move to the same syntactic position.

3.1.2. The Principle of Minimal Compliance as a guiding condition for wh-ordering

A very similar outcome would be observed if the order of the *wh*-elements were subject to the Principle of Minimal Compliance (PMC) proposed by Richards (1998), where all *wh*-phrases are assumed to move to SpecCP, while only the first *wh*-element must obey Superiority. Given that the target sentences always contain two *wh*-phrases, obeying the PMC would lead to the same results as the simple Superiority restriction (i.e., the sentences in (a) will be rated significantly higher than the ones in (b), and this would be the case for Superiority obeying sentences in all three groups: A, B and C). Splitting the *wh*-cluster would be rated as unacceptable again, even if the *wh*-words obey the Superiority requirement. For Bulgarian, Bošković's (1998, 2002a) analysis makes the same predictions as that proposed by Richards (1998). Therefore, if the results show an overall significant preference for Superiority obeying conditions and non-split *wh*-clusters, either analysis could be adopted. In addition, Richards' and Bošković's analyses would, in contrast with *wh*-elements ordered solely on the basis of Superiority, be supported if there were additional data showing whether the order of the second and the third *wh*-element in (16) could be freely altered. Given that such a condition was missing from the experiment, results where sentences in (a) are clearly preferred to those in (b) could not reveal if this is an outcome of the Superiority restriction, of the Principle of Minimal Compliance, or of the fact that part of the *wh*-elements are raised to SpecCP to satisfy their focus features.

3.1.3. Animacy as a leading factor in wh-ordering

A quite different effect would be observed if the Superiority constraint were always observed in the cases of two inanimate or two animate *wh*-phrases, but not necessarily so when one of the *wh*-phrases is animate and the other one is inanimate. Results of this type would show that the order of *wh*-phrases is determined by their animacy features. Such an option has been alluded to by Rudin (1986), as well as by Pesetsky (2000), who claim that agentive *wh*-subjects must always precede the rest of the *wh*-phrases in a multiple *wh*-interrogative sentence. If an overall preference for [+human] > [-human] ordering is attested, then [+human] *wh*-phrases will precede [-human] ones in all three types of conditions, thus bringing evidence

for Rudin's suggestion. Rudin (1986) assumes that Superiority violation preferences with the order of [+animate] > [-animate] should be attributed to dialectal variation. Nonetheless, given that subjects from different regions of the country participated in my experiment, results of this type across all three groups of conditions would point to a special hierarchy between *wh*-elements in Bulgarian, perhaps as powerful a condition as Superiority itself. If, on the other hand, the preferred order of *wh*-words at the beginning of the sentence were [+animate] preceding [-animate] only for the items of the A type (external and internal argument), then this would bring support for Pesetsky's theory of the special status of the agentive *koj*, 'who', in Bulgarian. However, this result would not require the addition of a hierarchy to the Superiority restriction, but rather only a special feature on a particular lexical item.

3.1.4. Wh-elements ordered by the OT-type constraints – a combination between Superiority, animacy and discourse prominence

The outcome of the experiment, if it were to reflect Billings and Rudin's (1994) theory, would be considerably different. Their OT-type rule-based approach predicts that for the group B conditions, sentences of type *a* (Superiority obeying) would be rated similarly to those of type *b* (Superiority violating), as they contain internal *wh*-arguments only. In contrast, conditions from groups A and C would not be rated uniformly. In those sentences where the higher *wh*-word is an external animate argument, Superiority is expected to be strictly observed. In contrast, conditions with an external inanimate *wh*-word will have similar ratings for their Superiority obeying and Superiority violating versions. Overall, a Superiority obeying order is expected to be preferred only in cases where the external (higher) *wh*-argument is an animate one. In the rest of the cases, the ratings would be expected to show no significant difference between versions *a* and *b* of the conditions for all the groups.

3.1.5. Wh-elements in SpecCP or in SpecFocP

One last problem remaining is the relationship between *wh*-phrases and the clause-internal focal projection. Whether focus has an effect cannot easily be reported by a paper-and-pencil study since additional stress cannot be signaled. Nevertheless, the focal nature and the syntactic position of *wh*-phrases was put to the test by adding fillers containing a *wh*-word

followed by an interrogative particle. Several situations were examined, as illustrated in the examples in (17) through (20) below⁵⁸:

- (17) *Koga trāgva Ivan li za Pariž?*
When leaves Ivan Q for Paris
'When does IVAN leave for Paris?'

The DP *Ivan* in (17) must be focused in order for the interrogative particle *li* to be able to attach to it. Thus, the example in (17) illustrates the addition of a focused element after the *wh*-element *koga* (when). Izvorski (1995), among many others, points out the focal nature of *wh*-phrases and claims that this predicts the unacceptability of additional focused elements after the *wh*-word. With the latter claim in mind, the rating of the sentence in (17) should indicate the correct analysis of the fronted *wh*-element. If the sentence in (17) is judged as acceptable (or at least significantly different from the unacceptable control cases), it would support the traditional theory where the *wh*-word is moved to SpecCP and the verb is raised to C⁰. Given a structure where the interrogative particle *li* heads an internal focal position, which has the focused element as its specifier and the *wh*-word is in SpecCP, the *wh*-phrase does not compete for the place of the focused element (*Ivan*). Consequently, the sentence should be deemed acceptable. If, on the other hand, (17) is rated as unacceptable, this would support the idea that the *wh*-element and the focused element preceding *li* are competing for the same syntactic position, namely SpecFocP, as proposed by Izvorski (1995).

Another combination between a *wh*-element and *li* used as filler is given in (18) below:

- (18) *Koga trāgva Ivan za Pariž li?*
When leaves Ivan for Paris Q
'You want to know when Ivan leaves for Paris?'

The example in (18) was added to contrast with the one in (17). It illustrates a situation where a whole clause is being focused, since *li* appears at the end of the sentence. Therefore, the intervening lexical material between the *wh*-word and the interrogative particle *li* is not

⁵⁸ The capital letters indicate the focused element. In (17) above, the speaker wants to make sure that the interlocutor is interested to know when Ivan (as opposed to someone else) leaves for Paris.

expected to be interpreted as an additional focus. Under Izvorski's analysis of Bulgarian questions, (17) is predicted to be rated as highly acceptable. If so, this would support the claim that *li* is situated in Foc^0 rather than in C^0 , as it is unmotivated to have such a complex SpecCP. The acceptability of (18) would also suggest that SpecFocP can be very complex, hosting not only single words/phrases, but also full clauses. Rating the sentence in (18) as fully unacceptable would be unforeseen, as it would suggest that echo-questions in Bulgarian are impossible. Typically, echo-constituent questions in Bulgarian would have the same word order as normal questions, but a different intonation. They can also be formed by adding the interrogative particle *li* at the end of the question, as if the speaker were asking whether it was indeed the question that was asked. In written texts, however, the addition of the interrogative particle is an easier way to ask an echo-question, since intonation is not reflected. Therefore, rating the sentence in (18) as completely unacceptable would be extremely unexpected.

Yet another version of co-occurrence of a *wh*-word and the interrogative particle *li* is presented in (19).

- (19) *Kogo li šte sreštneš ako hodiš samo po dolnoprobní kráčmi?*
 Who Q will meet_{2p.sg.} if go_{2p.sg.} only to low-class pubs
 'Who do you think you might meet if you only go to low-class pubs?'

The grammaticality of the co-occurrence of a *wh*-word and an interrogative particle has not been disputed in the literature. The purpose of fillers of this type in the current study is twofold. While serving as acceptable control sentences, their status as 'good' is an argument in favour of an analysis where the *wh*-element is treated as a focused constituent.

The last type of *wh*-word and interrogative particle combination examined in this test is shown below:

- (20) a) *Koj kogo li e vidjal na тази srešta?*
 Who whom Q Aux. seen at this meeting
 'Who has seen whom at this meeting?'

- b) *Kogo koj li e vidjal na тази srešta?*
 Whom who Q Aux. seen at this meeting
 ‘Who has seen whom at this meeting?’

The incorporation of the fillers in (20) served a double purpose as well. First, (20a) was intended as a contrast to (19). The order of *wh*-elements in (20a) obeys Superiority, as required by all the analyses of multiple *wh*-questions in Bulgarian. However, the *wh*-words are followed by the interrogative particle *li*, which has normally been assumed acceptable with one *wh*-word. Similar ratings for the examples in (20a) and (19) would point to the possibility of an interpretation of the two *wh*-elements as one focused constituent. This, in turn, could imply that the *wh*-elements form a cluster. However, such ratings cannot be used to determine the exact syntactic position of the cluster, since they would be compatible with the hypothesis that it could be either SpecCP or SpecFocP. The acceptability of (20a) could receive yet another explanation if the example in (17)⁵⁹ were deemed acceptable. Grading (20a) as acceptable could also suggest that the first *wh*-word is moved to SpecCP, whereas the second one is in SpecFocP and has the interrogative particle cliticized to it.

The second goal of this filler type was to compare sentences containing two Superiority obeying *wh*-elements followed by *li* with sentences with two *wh*-elements violating the Superiority constraint followed by *li*. In contrast to (20a), in (20b) the order of the *wh*-elements does not obey the Superiority restriction. The contrast between (20a) and (20b) was inspired by Bošković’s distinction between *Move* and *Attract*. If, similarly to Serbo-Croatian, Bulgarian fronts all its *wh*-words for focus reasons only, the order of the *wh*-words in (20b) should be acceptable. In addition, assuming that all *wh*-words move to the same position and form a cluster, the co-occurrence of two *wh*-words violating Superiority and the interrogative particle should be acceptable. Consequently, acceptability of (20b) would support the hypothesis that all *wh*-phrases in Bulgarian move to the same syntactic position, that is SpecFocP, since Superiority is irrelevant. Unacceptability of (20b) (assuming that (20a) is acceptable) would suggest two possibilities. Either Superiority is an important restriction in Bulgarian, or not all *wh*-elements are fronted to the same syntactic position.

In summary, the goal of this first experiment is to provide new insights into the possible analyses of controversial aspects of the syntax of multiple *wh*-questions in Bulgarian.

⁵⁹ A *wh*-question with an additional focused constituent followed by *li*.

The main objective of this work is to provide empirical evidence for the preferred order of *wh*-elements. This, in turn, would indicate whether the hypothesis according to which Superiority is a strictly obeyed restriction in this language can be maintained. The experiment also intends to determine the role of animacy features in the ordering of interrogative elements. In addition, this study aspires to provide evidence against the hypothesis that *wh*-words form a cluster in Bulgarian. Lastly, this research seeks evidence to postulate the syntactic position to which *wh*-words are fronted in multiple *wh*-questions.

3.2. The hypothesis

As we have already seen, linguists do not agree on the precise analysis of *wh*-interrogatives in Bulgarian. The structure of constituent questions, as well as the position and ordering of *wh*-elements, have not received an analysis that satisfactorily accounts for all the data. However, it is my opinion that all the theories outlined above capture, at least partly, a structure with the correct characteristics. In my view, a successful analysis of the ordering of *wh*-words at the beginning of the clause in Bulgarian would have several interacting factors. First, Superiority seems to be an important constraint, leading to a general overall preference for sentences where this principle is obeyed. Second, a certain hierarchy among *wh*-words seems to be observed, with animacy as an important feature. In particular, *wh*-words with [+animate]/[+human] features seem to have a special status among the paradigm of *wh*-words. Given all of the above, the expectation is that a *wh*-word combining all these characteristics – external argument with a syntactically higher position and [+animate]/[+human] features – will always require to be placed first. Such ordering will be in accordance with the Superiority requirement and also with a general hierarchy where *wh*-elements bearing [+animate] are placed first. I anticipated that the combination of two inanimate and two animate internal arguments would also show evidence of preference for sentences where the Superiority constraint is obeyed. However, I did not expect this constraint to be critical in the case of internal arguments, where inanimates normally precede animates in declarative sentences. In fact, in this combination, I expect higher ratings for sentences violating Superiority since the lower argument is hierarchically higher and is also preferred to appear first, as it is the animate one. However, I do not expect such results to be highly significant, as the preferred order contradicts a major syntactic constraint. I further expect the data to confirm that the *wh*-cluster

can be split and that the first *wh*-element must be raised to SpecCP, while the rest of the *wh*-words remain in SpecFocP. In the cases where the Superiority violating order is preferred, I expect that the cluster will not be able to be split, since both *wh*-phrases remain in SpecFocP and form an unbreakable cluster.

4. Results and discussion

The primary goal of the present study is to find out the preferred order of *wh*-words in Bulgarian multiple *wh*-questions, in order to confirm or disconfirm the hypothesis according to which Superiority must always be obeyed. The study focuses on factors such as type of the arguments (internal vs. external vs. adjunct) and their features ([+animate]/[-animate]). Eight different types of conditions were created with two variants each and conditions were split into two versions of the paper-and-pencil test. The participants rated the sentences on a scale from 1 (completely unacceptable) to 4 (perfectly fine). Thirty-six participants completed the A version of the questionnaire, whereas forty-nine completed the B version. For statistical purposes, ratings above and below two standard deviations of the mean were excluded. As a result, the data from three subjects from list B were excluded, since they had less than 10 answers from the total of 16 conditions after the elimination of ratings above and below two standard deviations.

4.1. Results for the experimental stimuli

The mean ratings for each group of conditions are presented in Table 1 below. The ‘OK’ indicates that Superiority is obeyed and the star (*) represents cases where Superiority is violated. The abbreviations should read as follows: **EA** – external animate; **EI** – external inanimate; **II** – internal inanimate; **IA** – internal animate; **Adj.** – adjunct.

	A: External and internal argument			B: Two internal arguments			C: Adjunct and argument	
	1. EA+II	2. EA+IA	3. EI+IA	4. II+IA	5. IA+IA	6. II+II	7. Adj+EA	8. Adj+IA
Superiority OK (#.1) ⁶⁰	2.21	1.63	1.70	1.34	1.79	1.35	1.87	1.32
Superiority * (#.2)	1.53	1.35	1.54	1.40	1.28	1.62	1.54	1.41

Table 1: Summary of results: mean ratings for target sentences

Table 1 above shows mean ratings for all types of conditions. The overall ratings reveal that in the conditions of the type A (external plus internal argument), the general preference is for sentences that obey Superiority. In contrast, in the items from groups B (two internal arguments) and C (adjunct and an argument), this is not always the case. Superiority is obeyed in the case of two internal animate arguments and in the combination of an adjunct and an external animate argument. However, in the rest of the conditions, the preferred order of *wh*-elements is the one where Superiority was violated. A series of statistical tests were further conducted to discover whether the differences were significant.

For all conditions, the dependent variable was the acceptability rating of the items, and an analysis of variance was conducted to compare group means. As the figures in Table 1 show, the version of the sentences obeying Superiority was not the preferred version in every case. This fact suggests that animacy is an important factor in deciding the order of the *wh*-words, as well as perhaps information focus or the length of the *wh*-constituent.

For **conditions 1 to 3** (external & internal argument), a two-way ANOVA was conducted using argument type (with 3 levels) and Superiority (with 2 levels). The three levels of argument types were as follows: (i) combination of an external animate and an internal inanimate argument; (ii) combination of an external animate and an internal animate argument and (iii) combination of an external inanimate and an internal animate argument. The two levels of Superiority were: (i) Superiority obeyed and (ii) Superiority violated, respectively. The ANOVA revealed significant main effects of argument type ($F(2,138) = 17.024, p < .001$)

⁶⁰ The (#.1)/(#.2) signs show how conditions were numbered for statistical purposes. It reflects (#) the number of the item (1-8, depending on the combination of the *wh*-phrases) and whether it obeys (.1) or disobeys (.2) the Superiority restriction. Thus, condition 1.1 is of the type external animate plus internal inanimate argument and it obeys Superiority. In contrast, condition 1.2. is a combination of external animate and internal inanimate arguments but the order of the *wh*-phrases violates Superiority.

and Superiority ($F(1, 69) = 16.330, p < .001$). It also revealed a significant interaction between these two factors ($F(2, 138) = 10.217, p < .001$). The different ratings of these conditions are illustrated in Figure 1 below:

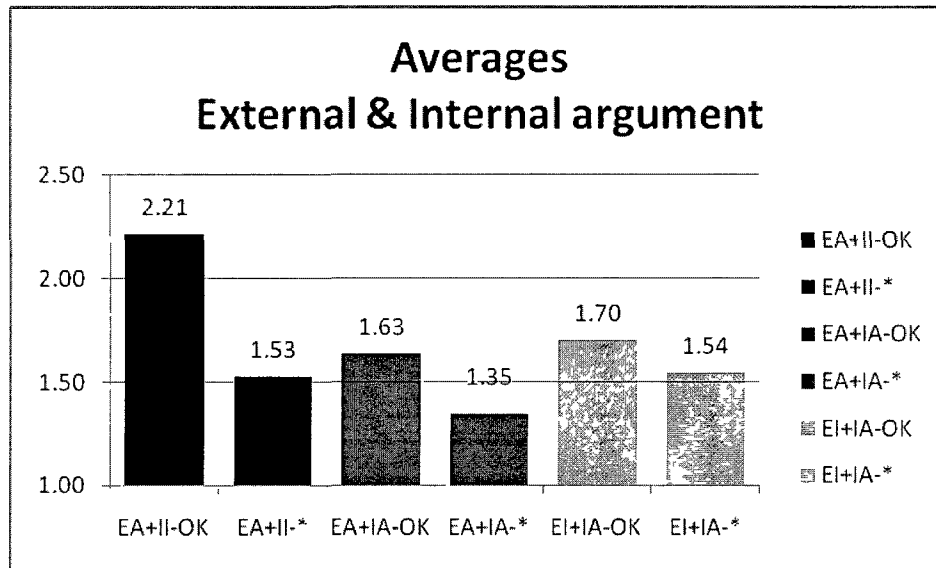


Figure 1: External animate (EA) or inanimate (EI) and internal animate (IA) or inanimate (II) arguments

I attribute the observed main effect of Superiority to an overall significant preference for Superiority obeying sentences in comparison with Superiority violating ones. The main effect of argument, on the other hand, could be related to the fact that different conditions did not exhibit identical behaviour and that sentences from condition 1 were overall rated higher than then items from conditions 2 and 3. In addition, the significant interaction between Superiority and argument type can be attributed to the fact that items from series 1 (conditions numbered 1.1 and 1.2) exhibited a bigger difference between the Superiority obeying version and the Superiority violating one than the rest of the items in this group (2.1, 2.2 and 3.1, 3.2). Such an effect indicates that, although there was a general preference for Superiority obeying sentences, such a preference varied between different conditions from type A.

I further conducted a series of two tailed t-tests for conditions 1 to 3. They showed that the differences in means between conditions 1.1 (Superiority OK) and 1.2 (Superiority *) were significant ($t(77) = 5.949, p < .001$). The differences between 2.1 and 2.2 ($t(77) = 3.369; p = .001$) were significant too. In contrast, the preference for the Superiority obeying version of

condition 3 to the one that violates it proved to not be significant ($t(75) = 1.354$; $p = .180$). This shows that Superiority is an important constraint in the combination of internal animate and external inanimate arguments. However, it is not critical.

Conditions 4, 5 and 6 (two internal arguments) showed quite different results. Their ratings are presented in Figure 2:

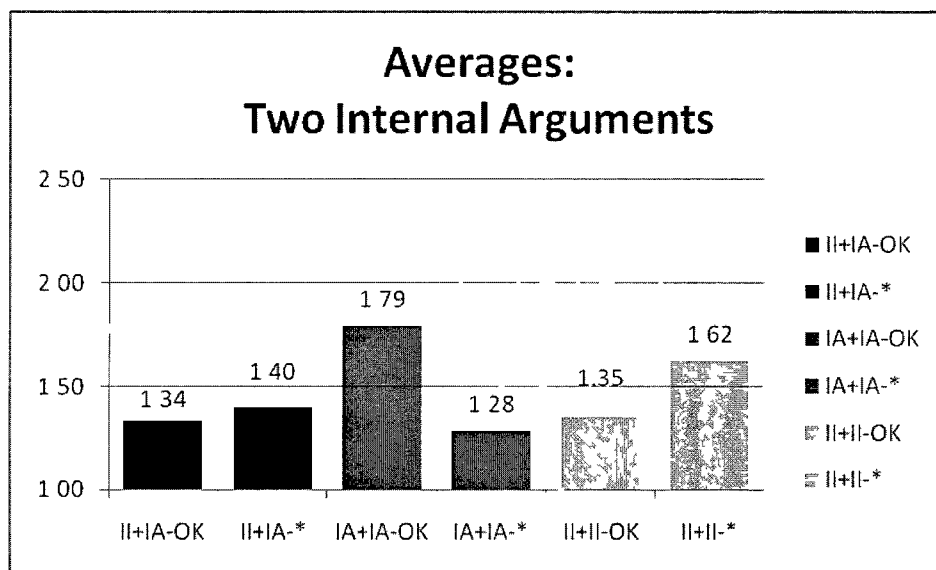


Figure 2: Two internal arguments: animate (IA) and inanimate (II)

For **conditions 4 to 6** (2 internal arguments) a two-way ANOVA was conducted using argument type (with 3 levels) and Superiority (with 2 levels). The three levels of argument types were: (i) combination of an animate and inanimate argument; (ii) combination two animate arguments; and (iii) combination of two inanimate arguments. The two levels of Superiority were respectively: (i) Superiority obeyed and (ii) Superiority violated. The ANOVA did not reveal a significant main effect of Superiority ($F(1, 67) = .043$, $p = .836$) or of argument type ($F(2, 134) = 1.506$, $p = .225$). However, there was a significant interaction of these two factors: ($F(2, 134) = 9.904$, $p < .001$). This showed that, although conditions 4 to 6 mirrored those of 1 to 3 as a combination of arguments, the syntactic position of the higher argument –as internal (conditions 4 to 6) or external (conditions 1 to 3) – is critical to the order of *wh*-words. Further, a series of two tailed t-tests was performed in order to examine the differences in the results between the items obeying Superiority and those violating this constraint. The t- test comparing condition 4.1 to 4.2 revealed that there was no significant

difference in the ratings of these items ($t(71) = -.754, p = .454$), which reflected the predictions of Billings and Rudin's (1994) theory. However, similarly to conditions 2.1 and 2.2, the contrast between conditions 5.1 and 5.2 proved to be significant ($t(77) = 3.980, p < .001$). The difference between conditions 6.1 and 6.2, where the preferred order was the one violating Superiority, was also significant ($t(80) = -3.071, p = .003$).

Finally, the analysis of the results from **conditions 7 and 8**, which contain an adjunct and an argument, was not surprising. Their differences are illustrated in Figure 3 below:

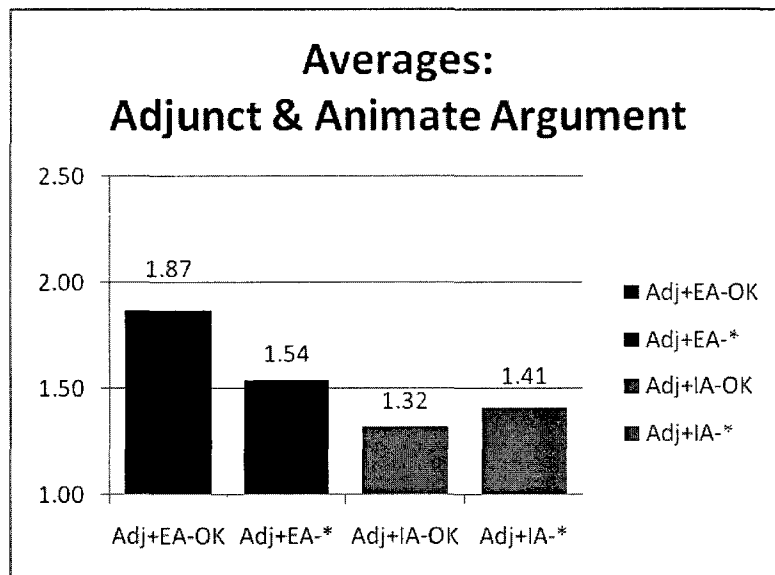


Figure 3: Adjunct (Adj) and external animate (EA) or internal animate (IA) argument

A two-way ANOVA was conducted using argument type (with 2 levels: external animate argument and an adjunct and internal animate argument and an adjunct) and Superiority (with 2 levels; i.e. Superiority obeyed and Superiority violated). The 2x2 analysis of variance showed a significant main effect of argument type ($F(1, 68) = 27.047, p < .001$) but only a trend for a significant main effect of Superiority ($F(1, 68) = 3.359, p = .071$).

The paired samples t-tests revealed that the differences observed between conditions 7.1 and 7.2 were significant ($t(74) = 2.433, p = .017$), whereas this was not the case for conditions 8.1 and 8.2 ($t(75) = -.756, p = .452$). As was the case for condition 5, the obtained results are consistent with Billings and Rudin's (1994) proposal.

4.2. Items discussion: Superiority, animacy and the order of *wh*-phrases

The discussed ratings show that there is no overall main effect of Superiority for every type of condition in multiple *wh*-questions in Bulgarian. The results of the experiment support the hypothesis that Superiority is an important constraint in this language. However, it is clear that the syntactic position from where the *wh*-phrase has moved is not the only criterion for ordering preferences of *wh*-phrases at the beginning of the sentence.

The results from conditions 1, 2 and 3 provide evidence for the idea that animacy is an important factor in the ordering preferences of *wh*-words. When the animate argument is syntactically higher (conditions 1.1 and 1.2), the Superiority constraint shows to be crucial. The significant difference in the ratings of these two types of conditions cannot be reduced to a mere preference for animate *wh*-phrases to appear first, since the combination of two animate *wh*-phrases also showed a significant discrepancy in the same direction. Condition 2.1 (EA + IA obeying Superiority) was rated significantly higher than 2.2 (IA + EA violating Superiority). Based on this result, it can be concluded that the order of *wh*-phrases at the beginning of a multiple *wh*-interrogative in Bulgarian, is at least partially, defined by the Superiority constraint.

In contrast to conditions 1 and 2, condition 3 showed a non-significant preference for the order obeying the Superiority principle. Interestingly the syntactically lower argument is animate, whereas the higher one is non-animate. Thus, the order [+animate] preceding [-animate] is better accepted. At first glance, such a high acceptance could lead to the unexpected conclusion that an animacy-based hierarchy of *wh*-elements is stronger in Bulgarian than the universal Superiority restriction. Nonetheless, there is an overall preference for the Superiority obeying condition. Such an outcome supports the theory put forward by Billings and Rudin (1994), whereby an external inanimate argument has the option to (but must not necessarily) appear first. Therefore, it can be concluded that both principles, Superiority and '*animate first!*' (or a rule like SUBHUM: SpecIP must be human), are applied simultaneously. As a result, a syntactic configuration where the lower *wh*-phrase is animate and the higher one is non-animate can have two structures: one where the order of the *wh*-elements follows Superiority and another where the order of the *wh*-elements obeys the hierarchy restriction.

The results from conditions 4 and 5 support the findings based on the ratings of conditions 1, 2 and 3 to the effect that there is an animacy-based hierarchy of *wh*-expressions in Bulgarian. However, the results from condition 6 were unanticipated. Ratings for condition 5 (two internal animate arguments) paralleled those for condition 2. In both cases the preferred order obeyed the Superiority constraint and the difference in ratings between the obeying and the violating condition was highly significant. The data resulting from such a condition clearly contradicts the prediction of Billings and Rudin's theory, whereby the Superiority restriction is expected to not be relevant for the order of internal arguments. Therefore, condition 5 provides further evidence to support the hypothesis that the underlying position of the *wh*-elements plays a critical role in their ordering. Similarly to condition 3, condition 4 (internal inanimate and internal animate arguments) showed a preference for ordering the *wh*-elements on the basis of a hierarchical requirement: [+animate] > [-animate]. Again, this difference was not significant, thus suggesting that Superiority and hierarchical ordering do not exclude each other and these are two principles that operate simultaneously. The most surprising result in this group of conditions was the rating of the two inanimate internal arguments (condition 6). Given that both arguments are not animate, the expected preferred ordering was the one following Superiority. None of the *wh*-phrases in this condition is animate, and thus no principle should conflict with the Superiority restriction. The data cannot be accounted for by Billings and Rudin's theory either, as their approach predicts that the order of the internal *wh*-elements is free. Thus, under their analysis, no significant preference for any of the versions (*a* or *b*) is expected either. Nonetheless, the results unexpectedly showed a significant preference for the conditions violating Superiority. There could be, at least, two possible explanations for this phenomenon. First, this could be taken to be a reflection of the fact that information focus is typically situated at the end of the clause (Zubizarreta, 1998, among others). Thus, speakers might perceive the syntactically lower *wh*-phrase as 'more focused' than the syntactically higher one, as it is not only a *wh*-phrase, but by assumption has also moved from the default stress position which is the typical position of information focus. In addition, the higher *wh*-phrase is non-animate, so it is not hierarchically higher than the lower one. As a consequence, there could be an overall preference for the second *wh*-phrase to appear first since it would be considered to be more informationally prominent. Therefore, the surprising results for condition 6 could be explained in terms of the positioning of information focus. However,

such an explanation may pose one major problem. Namely, it predicts a general preference for Superiority violating *wh*-ordering for all the cases when the two *wh*-phrases are non-animate.

- (21) a) *[The wind]_i has broken [the window]_j.*
b) *What_i has broken what_j?*
c) *? What_j has what_i broken?*
- (22) a) *This distributor supplies [the store]_i [with the new drug]_j.*
b) *What_i does the distributor supply with what_j?*
c) *? With what_j does the distributor supply what_i?*

Under the analysis where the preferred order of *wh*-elements is the one that is inherently focused and is preferred to appear first, (21c) should be at least as good as (21b). The same phenomenon should be observed with two internal arguments, as illustrated in (22). However, such a preference has not been reported in the literature and the data above reveal the opposite preference.

The second possible explanation for the results from condition 6 is the length of the *wh*-phrase. Double object constructions in Bulgarian do not have the same characteristics as those reported for English. The theme is always a direct object, whereas the goal is usually introduced by a preposition⁶¹. Hence, in condition 6, the first *wh*-phrase was typically *kakvo* ‘what’, while the second was always a PP (with what, for what, to what, etc.). Given that the second *wh*-element was longer, it might be possible for the subjects in the experiment to have interpreted it as similar to discourse-linked *wh*-phrases. It has been argued in the literature pertaining to English that fronting of d-linked *which*-phrases appears to be unrestricted (Kayne, 1983; Pesetsky, 1987). Therefore, if Bulgarian speakers interpreted the second *wh*-phrase as d-linked, it would no longer be surprising if they deemed the Superiority violating order acceptable. This explanation is further supported by the fact that the presence of two *wh*-phrases is definitely context-dependent. Although this experiment tested only judgments of sentences presented without any context, it is possible that the subjects situated the sentences

⁶¹ I am abstracting from the case where the theme is topicalized and appears sentence-initially. In that case a ‘*na-drop*’ is frequently observed and the theme argument surfaces as a DP rather than a PP. For more details on this phenomenon, see Slavkov (2009).

in some context and related the two *wh*-phrases to it. Therefore, such an explanation of the results from condition 6 requires confirmation by further testing with sentences in context.

In addition, there is an interesting observation regarding the production part of the experiment that is worth mentioning at this point. The condition in which the order of the *wh*-elements obeyed Superiority was of the type DP > PP. In contrast, the order in the violating items was PP > DP, the two *wh*-words being always *kakvo*, ‘what’. Both sequences very much resemble the repetition of *wh*-words at the beginning of the clause, which is unacceptable, as pointed by Rudin (1986) and Bošković (1998), among others. As a consequence, many subjects rated these sentences with a 3 (less often a 2) perhaps assuming that the repetition – especially in the PP > DP version – is a typographical error and the direct object argument is elided. Example (23) below repeats example (8) for convenience:

(23) **Two inanimate internal arguments**

a) *Kakvo_i* *s* *kakvo_j* *predpolagaš* *če* *dostavčikāt* *snabdjava*
 What with what suppose_{2p.sg.pres.} that deliverer-the supplies
t_i *t_j* *vsjaka* *sedmica?*
 every week

‘What do you suppose that the delivery guy supplies with what every week?’

b) S *kakvo_j* *kakvo_i* *predpolagaš* *če* *dostavčikāt* *snabdjava*
 With what what suppose_{2p.sg.pres.} that deliverer-the supplies
t_i *t_j* *vsjaka* *sedmica?*
 every week

(24) **Most frequent corrections given:**

a) ~~*Kakvo_i*~~ *s* *kakvo_j* *predpolagaš* *če* *dostavčikāt* *snabdjava*
~~What~~ with what suppose_{2p.sg.pres.} that deliverer-the supplies
t_i *t_j* *vsjaka* *sedmica?*
 every week

‘With what do you suppose that the delivery guy supplies every week?’

The combination of an external animate argument and an adjunct (condition 7) showed a significant preference for the Superiority obeying *wh*-order. Thus, this condition supported once again the idea that Superiority is an important restriction in Bulgarian and it is usually obeyed. The preference for the Superiority violating order of the combination of internal animate argument and adjunct, although not significant, was unexpected⁶³. Given what has been observed to this point, the results would rather predict that the preferred order would be the one obeying Superiority, as the argument appears first and also bears the feature [+animate]. These unexpected results could be explained in two ways. On the one hand, the preference for the Superiority violating order might reflect a general preference for shorter *wh*-phrases to appear first, as the adjunct *wh*-word used was *kāde* ‘where’ and the argument *wh*-phrase was *kogo* ‘whom’, or *na/za kogo* ‘to/for whom’. Thus, this would represent a new phonotactic restriction on the ordering of *wh*-phrases. However, this option should be further investigated before considering the existence of such a constraint. The other possibility is to assume that the preference reflects the place of attachment of the adjunct. Given that the argument was kept internal (the *wh*-phrase was originally merged inside the VP), the locative adjunct would be syntactically higher (as the assumption is that it adjoins on top of the VP). In this context, the contrast between conditions 7 and 8 is not surprising. Namely, in 7 the external argument is merged syntactically higher than the adjunct, whereas in 8, the *wh*-argument is merged lower than the adjunct. Therefore, the results from 8 are no longer unexpected, but rather they parallel what has been observed in conditions 3 and 4. Both orders are available and the difference in ratings in them is not significant, as the two contradictory constraints – Superiority and *animate first!* – are operating simultaneously.

In summary, the results show that Superiority appeared to be an important factor in the ordering of *wh*-phrases in Bulgarian. However, there seems to be an additional *wh*-phrase hierarchy which requires animate *wh*-phrases to appear before non-animate ones. This is the case not only for external arguments, but also for internal ones, which was additionally attested in the results relating to the combination of an adjunct and an argument *wh*-phrases.

All this suggests that the initial observation by Rudin (1986) – that animacy plays a role in the ordering of the *wh*-elements at the beginning of a multiple *wh*-question – is a

⁶³ However, such a result is in line with the predictions made by Billing and Rudin’s (1994) analysis, as none of the *wh*-words are external animate arguments. Nonetheless, as data obtained through the paper-and-pencil test does not seem to consistently confirm their hypothesis, there could be a different explanation for these phenomena.

crucial point for the syntax of Bulgarian interrogatives. However, I believe that this is not an instance of dialectal variation, but rather a language-specific hierarchy. Pesetsky's (2000) idea –to the effect that this is only a requirement valid for agentive subjects –can only partially be adopted as an account for Bulgarian. The results of the test have clearly shown that such a hierarchy is observed with all animate arguments, irrespectively of whether they are internal or external. A surprising discovery was that in the case of two internal inanimate arguments, the preferred order of *wh*-words was the one violating the Superiority condition. The reason for this could be the assumption that elements bearing information focus are typically sentence-final. Another option, however, would be to assume that PP *wh*-phrases were interpreted as discourse-linked (despite the fact that they are not d-linked), thus they were fairly free in their movement. Lastly, the results of the experiment show that the ordering of the *wh*-phrases in multiple *wh*-questions in Bulgarian is a rather complex phenomenon.

4.3. Fillers: results and discussion

Before concluding the results section, I turn to the fillers⁶⁴ used in the experiment. As discussed in the stimuli section, their selection was carefully thought out. Fillers served two key purposes. Some of them were used as control sentences, functioning as a base for comparison to judge the acceptability of the rest of the fillers and items. Others were intended to test the judgments of native speakers regarding negative and alternative *y/n* questions in Bulgarian. In what follows, I review only the fillers relevant to the hypotheses discussed above and the selection of an appropriate syntactic structure for *wh*-interrogatives in Bulgarian. All relevant filler types and their average ratings are presented in Figure 4.

⁶⁴ Typically, fillers are used to distract participants from target items. In the experiments presented in this and the following chapters, however, fillers serve a double purpose. On the one hand, fillers are used as acceptable and unacceptable control sentences. On the other, sentences that bring evidence for the syntactic structure of Bulgarian interrogatives were used as additional controls. Thus, fillers were rather like an experiment within the experiment, although their number was not statistically planned in all cases. Although fillers played an important role in this study, in what follows, I will keep using the label *fillers* for sentences that were used as additional controls, in order to distinguish them for target sentences used to define the preferred *wh*-order in multiple *wh*-interrogatives.

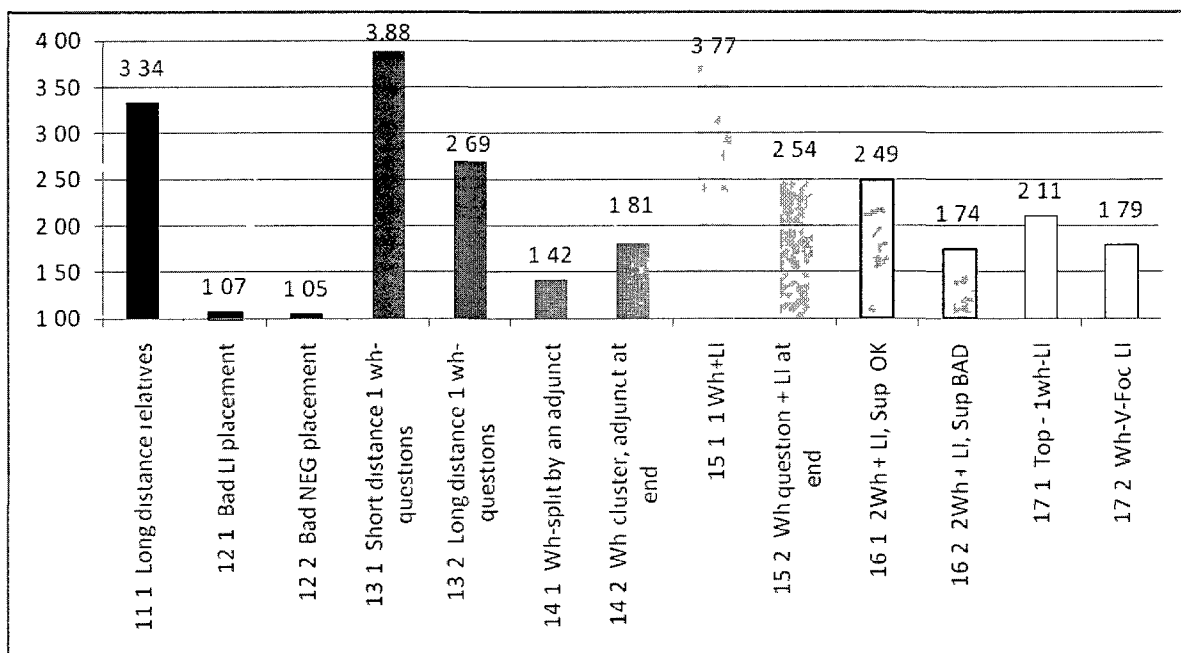


Figure 4: Average ratings for *wh*-fillers, experiment 1

The fillers were not statistically designed; thus, we cannot draw decisive conclusions on the basis of their ratings. Nonetheless, their rankings could provide support for the syntactic structure of *wh*- interrogatives in Bulgarian. The fillers used for this purpose were of several types: series 12, 16, 17 and 14, described in order below:

(i) Unacceptable control sentences – series 12.

These fillers were of two types. Fillers numbered 12.1 were *y/n* questions where the interrogative particle *li* has been misplaced:

- (25) **Li Ivan ne xodi nikoga na počivka?*
 Q Ivan Neg goes never to vacation
 Intended meaning: ‘Does Ivan never have a vacation?’

The interrogative particle *li* in Bulgarian is an enclitic which always appears adjacent to (i.e. after) the most phonologically prominent word/phrase in the clause. As such, it can never be clause initial. Therefore, under no circumstances can the sentence in (25) be judged as acceptable.

Fillers numbered 12.2 included both *y/n* and *wh*-interrogatives in which negation appeared in the wrong place.

- (26) **Kogo kăde ne Marija vižda?*
 Who where Neg Maria sees
 Intended meaning: ‘Who does Maria not see where?’

Typically, sentential negation in Bulgarian is adjacent to the verb. However, it is not impossible for negation to appear in front of DPs as well, as an instance of constituent negation. Thus, in a particular context, sentence (26) could also mean something along the lines of ‘*Who does not Maria (but Paul) see where?*’ This experiment did not provide a context for the sentences in the questionnaire, but it seems reasonable to assume that such an interpretation of (26) would not be the first to come to mind. However, to avoid higher ratings among the unacceptable control sentence, fillers of the type of (26) were numbered separately from the type in (25). Mean ratings are illustrated in the following figure:

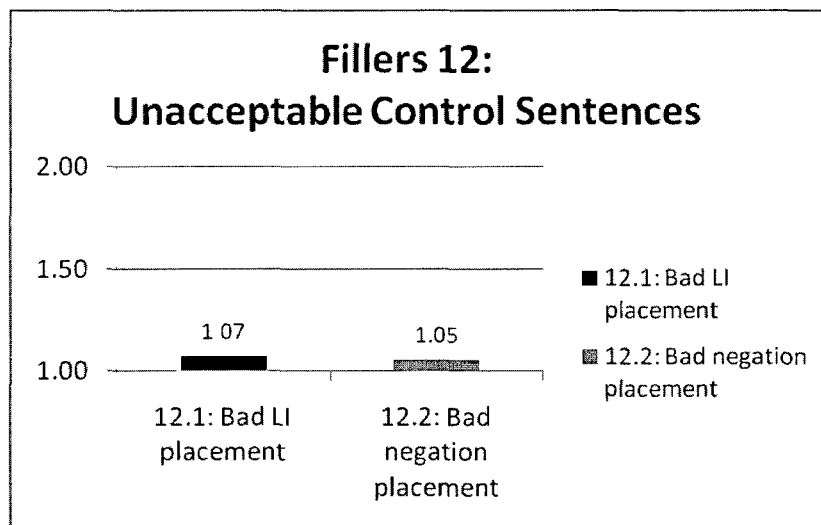


Figure 5: Average ratings for the unacceptable control sentences

As we can see from Figure 5, both types of control sentences were rated extremely low. To eliminate any doubts about possible disparity between these two types of sentences, a paired samples t-test was conducted. The test showed that there is no significant difference between the two types of unacceptable sentences ($t(74) = .555, p = .581$). Thus, either of these two

types of clauses can be used as a base comparison to other lower rated (i.e. unacceptable) items. In what follows, I will use the ratings of 12.1 as a comparison, as this type of filler was rated slightly higher than 12.2.

(ii) Multiple *wh*-questions with added interrogative particle *li* – series 16.

Again, these fillers were of two types. The ones numbered 16.1 were composed of multiple *wh*-questions obeying the Superiority restriction, with an interrogative particle *li* added at the end of the *wh*-cluster.

- (27) *Koj kogo li e vidjal na тази srešta?*
Who whom Q Aux. seen at this meeting
'Who could possibly have seen whom at this meeting?'

Given that the interrogative above contains only two interrogative words which are both animate arguments, the order of the *wh*-elements in (27) is expected to be acceptable under all analyses discussed earlier. Therefore, the addition of fillers of the type of (27) was intended to confirm the acceptability of the co-appearance of more than one interrogative word and the interrogative particle *li* in *wh*-questions.

In contrast to 16.1, the fillers in 16.2 consisted of multiple *wh*-question disobeying the Superiority restriction and an interrogative particle at the end of the *wh*-cluster.

- (28) *Kogo koj li e vidjal na тази srešta?*
Whom who Q Aux. seen at this meeting
'Who could have possibly seen whom at this meeting?'

The order of the *wh*-elements in (28) is predicted to be unacceptable under most of the analyses discussed earlier, as well as by the results obtained by means of the target sentences in this experiment. Therefore, the sentence in (28) is expected to be unacceptable, unless Bulgarian *wh*-questions work as in Serbo-Croatian⁶⁵, where all *wh*-elements are moved to an

⁶⁵ Bošković (1998, 2002a) argues that in Serbo-Croatian all *wh*-words in matrix questions move to the specifier of a head different from C⁰ via *Move*, therefore the Superiority constraint is irrelevant.

internal [e.g. focal] projection, thus making Superiority a non-relevant constraint for their movement.

The average ratings of these two types of fillers are given in Figure 6, below:

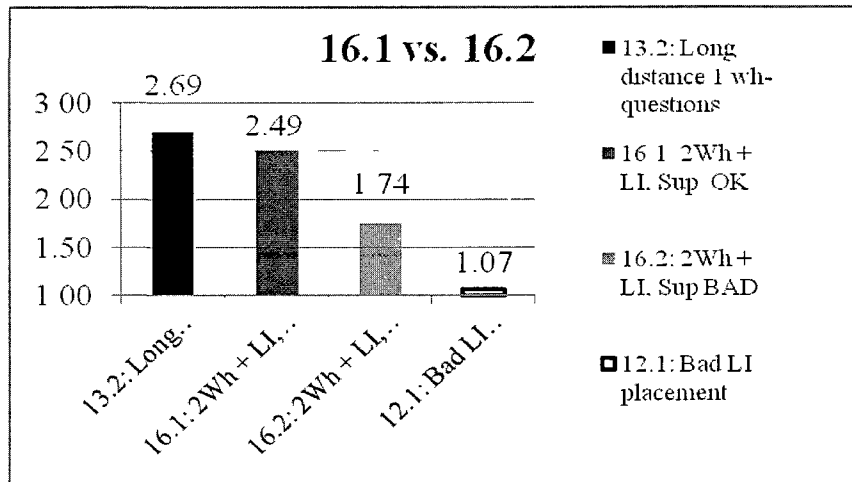


Figure 6: Ratings for fillers containing two *wh*-words and interrogative particle *li* compared to ratings of control acceptable (13.2) and control unacceptable (12.1) sentences

Due to their design, fillers 16.1 (two *wh*-words + *li*, Superiority obeyed) and 16.2 (two *wh*-words + *li*, Superiority violated) were compared through an independent sample t-test that revealed that the different ratings of these two fillers resulted in a significant effect ($t(80) = -3.094$, $p = .003$). Such an effect was not unexpected, given the fact that the analysis of the stimuli items in this experiment has already shown that Superiority in Bulgarian is an important constraint on the ordering of the *wh*-elements at the beginning of the interrogative. These two filler types were further compared through paired samples t-tests to acceptable control sentences (13.2 – long distance single *wh*-movement) and to the unacceptable control sentences (12.1 – wrong placement of the interrogative particle *li*). These two comparisons revealed that fillers of the type 16.1 did not differ significantly from the ones in 13.2 ($t(46) = .612$, $p = .544$), whereas fillers of the type 16.2 were significantly different ($t(34) = -14.808$, $p < .001$) from the long distance *wh*-movement fillers (13.2). In addition, fillers of the type 16.1 were significantly different from the unacceptable control sentences ($t(45) = -7.476$, $p < .001$), as well as those of the type 16.2 ($t(36) = -3.688$, $p = .001$).

This last finding was somewhat surprising. As already pointed out, fillers of the type 16.1 were expected to pattern with acceptable control sentences and to be significantly

different from unacceptable control sentences, as demonstrated by the results. However, fillers of the type 16.2, where Superiority was disobeyed, were significantly different from the acceptable control cases (as predicted) but did not pattern together with the unacceptable control cases (12.1). This last disparity is not expected under the assumption that Superiority is the basic principle when ordering *wh*-phrases. I interpret these results as pointing to two important pieces of evidence. First, the results indicate that, as previously suggested, *wh*-words can form a cluster, which is interpreted as the focused constituent in the sentence. Such a situation makes acceptable the co-occurrence of several *wh*-elements and the interrogative particle *li* (16.1). Second, the significantly different ratings between 16.1 and 16.2 suggest that Superiority indeed plays a role when ordering the *wh*-constituents. However, as the comparison between 16.2 and 12.1 reveals, disobeying the Superiority restriction does not force a sentence to be judged completely unacceptable. I take this to be attributable to the focal nature of the *wh*-elements. Under the assumption that all *wh*-elements move to SpecCP, this data remains unaccounted for. The movement of all *wh*-words to SpecCP, together with the Superiority constraint, predict that 16.2 would be fully ungrammatical, which was not confirmed by the results. If, on the other hand, all *wh*-words in Bulgarian moved to SpecFocP (as it has been proposed for Serbo-Croatian), there should be no significant difference between 16.1 and 16.2, contrary to what we have observed. However, if we assume further that only one of the *wh*-words raises to SpecCP from SpecFocP, whereas the other(s) remain in SpecFocP, the significant divergence between 16.1 and 16.2, as well as the difference between 16.2 and 12.1, can be accounted for. One of the *wh*-elements has raised from SpecFocP to SpecCP to satisfy the [+wh] requirement of C⁰, whereas the second *wh*-element has been ‘greedy’ and has moved to SpecFocP and remained there. In that case, the *wh*-element raised to SpecCP must be the bearer of the [+wh] feature, whereas the second interrogative word must bear only [+Foc] feature. This could be the case of an echo-question or a repetition, both of which require a specific context. Nonetheless, the sentence will not be judged truly ungrammatical. As no phonological material intervenes between the two *wh*-words, they seem to disobey the Superiority restriction, thereby causing their lower markings. This also allows for them to form a ‘*wh*-cluster’ – the focused constituent to which the interrogative particle is attached. It seems, therefore, that the results of the experiment can be explained on the assumption that only one *wh*-word moves to SpecCP in Bulgarian, the rest remaining in a lower position, perhaps SpecFocP, as the interrogative particle *li* can cliticize to it. Finally,

there is no need to postulate two different structures for 16.1 and 16.2. The same analysis could also be applied to the cases where the Superiority constraint is obeyed. One would have to assume, however, that in Bulgarian C^0 needs only one element in its specifier position in order to satisfy its [+wh] feature⁶⁶. The [+wh] features of the remaining interrogative words are checked via *Agree*, as only one *wh*-element raises to SpecCP and the rest remain in SpecFocP.

(iii) Topicalized or focused phrase in a *wh*-question with added interrogative particle *li*.

As with the previous categories of fillers, two types of sentences are included in this group. Fillers numbered 17.1 represented single *wh*-interrogative sentences with an interrogative particle *li* and a topicalized phrase at the beginning of the clause:

(29) *Za Pariž koga trāgva Ivan li?*

For Paris when leaves Ivan Q

‘About Paris, you want to know when Ivan leaves for there.’

Topicalized constituents typically appear clause-initially. They are usually assumed to be left adjoined to SpecCP, in an additional specifier projection to CP, above the interrogative phrase (Izvorski, 1995; Rudin et al. 1999; Arnaudova, 2003; Krapova and Cinque, 2003; Bošković, 2004 among others). Given such an analysis, the sentence in (29), without the interrogative particle, must be acceptable under the traditional analysis of *wh*-interrogatives. The presence of the interrogative particle, however, forces the focus interpretation of ‘*When Ivan leaves*’ (rather than ‘*When does Ivan leave*’) and further complicates the interpretation of the sentence. Instead of a single *wh*-question with a topicalized constituent in the beginning of the clause, (29) must be interpreted as a sentence containing both a topicalized and a focused (perhaps a TP) phrase. As such, it relies heavily on context for its interpretation.

The second type of filler in this group is *wh*-interrogatives where an additional focused phrase has been added with the interrogative particle *li* cliticized to it.

⁶⁶ This would make Bulgarian a language with C^0 of the type *attract-one* in Rudin’s terms. In contrast, the clause-internal focus projection will be of the type *attract-all*.

- (30) *Koga trǎgva Ivan_F li za Pariž?*
 When leaves Ivan Q for Paris
 ‘Is it Ivan the one for whom you want to know when he leaves for Paris?’ /‘When does IVAN leave for Paris?’

Traditional analyses of *wh*-questions, together with the assumption that there is an internal focal projection below C^0 , predict that the example in (30) should be fully acceptable: the *wh*-element has moved to SpecCP, the verb has undergone T-to-C raising, and the subject has been focused. The expected ratings for this sentence should be comparable to the acceptable control sentences (i.e., 13.2). Under the assumptions of Lambova (2001, 2004), who supports the idea that all *wh*-phrases move first to SpecFocP and only the highest one raises to SpecCP from there, the sentence in (30) is problematic) If one interprets the subject as the only focused phrase, then it competes for the same position with the trace of the *wh*-phrase ‘*when*’. If it is assumed that the whole phrase ‘*when Ivan leaves*’ is focused, then the presence of an echo-question is evident and requires a certain context for its interpretation. In both cases, the expected ratings for the filler in (30) are rather low. The average ranking of these fillers is illustrated in Figure 7 below:

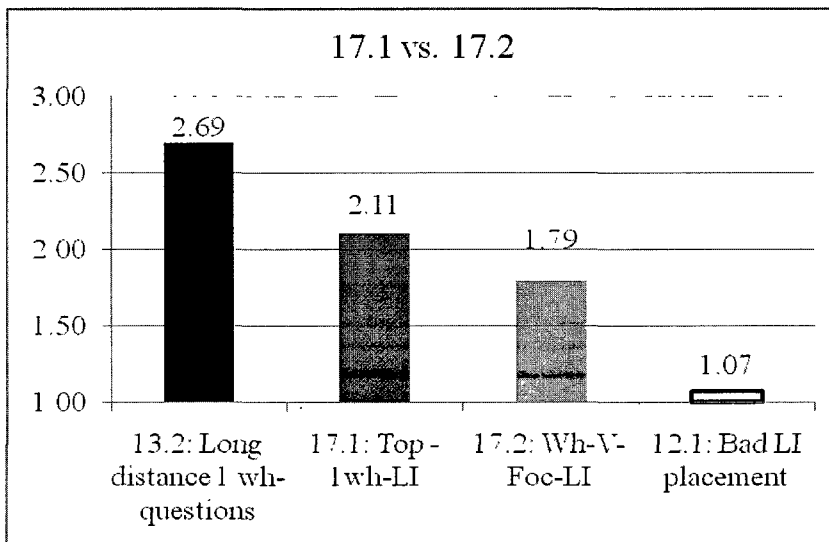


Figure 7: Ratings for fillers containing a topicalized/focalized element in a single *wh*-question with an interrogative particle *li* added, compared to control acceptable (13.2) and control unacceptable (12.1) sentences

Due to the design of the experiment, the data from fillers 17.1 and 17.2 were compared using an independent sample t-test. The difference in ratings proved not to be significant ($t(79) = -1.414, p = .154$). Both filler types were further compared using a paired samples t-test to the control sentences. The test showed that the fillers were significantly different from the fully acceptable sentences in 13.2 ($t(46) = .612, p = .005$ for 17.1 and $t(33) = 5.578, p < .001$ for 17.2). Finally, both filler types were confirmed to be significantly different from the unacceptable control sentences in 12.1 ($t(45) = -6.621, p < .001$ for 17.1 and $t(30) = -4.509, p < .001$ in the case of 17.2).

The significant discrepancy of both examples from the control clauses was unexpected under the traditional view of *wh*-questions. As already mentioned, both types of fillers were expected to be very good (if not fully acceptable) under this analysis. Such a prediction was not borne out by the results of the experiment. I interpret these results as pointing to two important facts. The lack of a significant difference in the ratings of 17.1 and 17.2 is a reflection of the fact that both types of sentences rely heavily on context for their interpretation. Both types of fillers involve the presence of at least one focused element and possibly a second focused or topicalized phrase. On the one hand, the results reveal once again the focal nature of *wh*-elements. Given that the interrogative elements are inherently focused, it is preferable for the interrogative particle *li* to cliticize to the *wh*-word rather than to any other element in the clause. Hence, in contrast to what was observed in 16.1, fillers of the types: 17.1 and 17.2 differ significantly from the acceptable control clauses. On the other hand, I take these results to further support the idea that *wh*-phrases move to a clause-internal focal projection before they move to SpecCP. Only if we interpret the whole TP as focused, could the sentences in (29) and (30) be understood. However, the lack of context makes such an interpretation more subtle, which results in the lower ratings of both types of fillers.

(iv) Split vs. non-split *wh*-cluster – series 14.

The last groups of fillers used to deduce the appropriate syntactic structure of *wh*-questions in Bulgarian contained two groups as well. The group numbered 14.1 included sentences where the *wh*-cluster was split, as illustrated in (31) below.

- (31) *Koj* *verojatno* *kāde* *koga* *e* *zaminal* *na* *počivka?*
 Who probably where when Aux. left to vacation
 ‘Who has probably gone where and when for a vacation?’

The traditional generative analysis of *wh*-questions assumes that interrogative words in multiple *wh*-questions form a cluster⁶⁷. Following such an assumption, the sentence presented in (31) must be considered fully unacceptable. In contrast, Lambova’s (2001, 2004) approach advocates for a structure where one of the *wh*-phrases has raised to SpecCP, whereas the rest of the interrogative words remain in the specifier of an internal focus/topic projection (her ΔPhrase). Consequently, the ratings of the fillers of the type of 14.1 could reveal a general preference for the cluster to be split or not, supporting one analysis or the other.

The second group of fillers in the 14 –series is labeled 14.2 and represents the same phenomenon as in 14.1, but with a non-split *wh*-cluster:

- (32) *Koj* *kāde* *koga* *verojatno* *e* *zaminal* *na* *počivka?*
 Who where when probably Aux. left_{p.p.3p.sg.masc.} to vacation
 ‘Who has probably gone where and when for a vacation?’

The preference for the non-split cluster, as exemplified in (32), would suggest that the best analysis would be one where the proposed structure does not admit additional material between the *wh*-words, as it is predicted by the traditional analysis of multiple *wh*-interrogatives.

The mean ratings of these filler types are illustrated in Figure 8 below:

⁶⁷ Note that the cluster assumption is valid under both approaches: all *wh*-words raising to SpecCP and all *wh*-words raising to SpecFocP. It is also independent of the ordering of the *wh*-words.

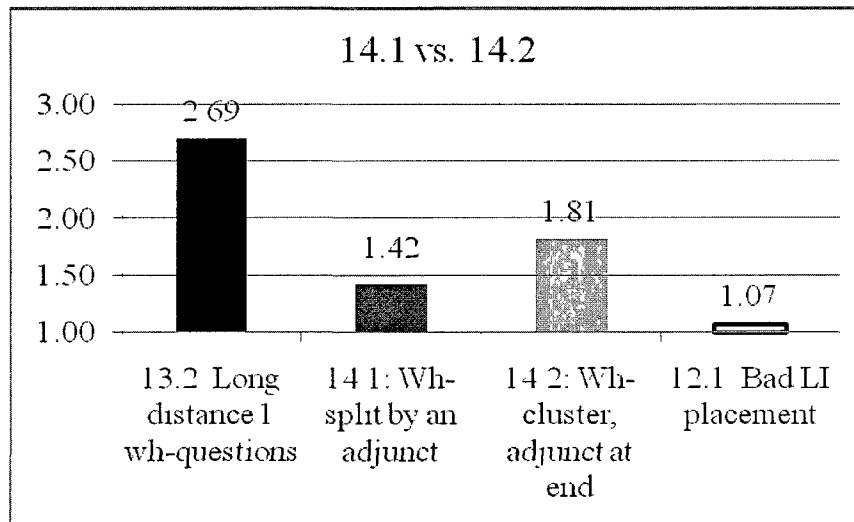


Figure 8: Mean ratings for fillers with split (14.1) vs. non-split (14.2) *wh*-clusters compared to control acceptable (13.2) and control unacceptable (12.1) sentences

The two groups of fillers were compared by means of a paired samples t-test. The results revealed that the difference in ratings is significant ($t(73) = -3.080, p = .003$), showing that there is an important preference for the non-split *wh*-cluster. In addition, as with the rest of the fillers, the two groups were compared to the control sentences and proved to be significantly different from the acceptable control sentences in 13.2 ($t(76) = 12.521, p < .001$ for 14.1 and $t(79) = 7.725, p < .001$ for 14.2) as well as from the unacceptable control clauses in 12.1 ($t(72) = 3.574, p = .001$ for 14.1 and $t(76) = 7.711, p < .001$ for 14.2).

The data suggests that there is a general preference for sentences with non-split *wh*-clusters. However, as the significant difference between 14.1 and 12.1 has indicated, multiple *wh*-questions with split *wh*-clusters are not fully unacceptable. The latter is unexpected under the traditional view, according to which all *wh*-words form a unified constituent. I take these results to support Lambova's idea that one *wh*-word raises to SpecCP, whereas the rest remain in SpecFocP (Lambova's ΔP^{68}). The significantly lower ratings of these fillers can be attributed to two facts. First, both groups of sentences with split (14.1) and non-split (14.2) *wh*-clusters contained three *wh*-words, which makes them need a specific context for their interpretation. Second, the general preference for the non-split cluster version can be explained

⁶⁸ Recall that Lambova's proposal was that the *wh*-cluster can be split only after the first *wh*-element, but not after the second one. The comparison in the series of the type 14 was based on the assumption that splitting the *wh*-cluster after the second element would be completely unacceptable and aimed to compare the non-split version to the split one which has been deemed acceptable.

by the very fact that *wh*-elements are inherently focused. All such elements bear special stress and belong to the left periphery of the clause. As a consequence, the tendency for all focused constituents to aggregate is not wholly unexpected, as they share similar semantic and phonological information. Nonetheless, since *wh*-words do not form a true cluster, they can be split and this does not result in a fully unacceptable structure.

The results obtained through the filler analysis were very coherent. Below, I summarize the conclusions drawn upon them to this point.

The results concerning the multiple *wh*-interrogatives with an interrogative particle (series 16) showed that *wh*-words can be interpreted as a cluster and the preferred ordering is the one determined by the Superiority constraint. In accordance with what has been observed in the main part of this study, fillers of this type revealed that Superiority is not a significant enough restriction to rule out a sentence that violates this constraint. Furthermore, it was shown that the results could be explained as an outcome of the focal nature of the *wh*-elements on the one hand, and as a result of the fact that not all *wh*-phrases occupy the same syntactic position, on the other. That is, given my formal assumptions, the first *wh*-word must have raised to SpecCP, leaving behind the rest of the *wh*-elements in SpecFocP.

Fillers combining a topicalized/focused phrase and a *wh*-question with an interrogative particle (series 17) also point to the fact that *wh*-elements do not necessarily remain in the same syntactic position. A structure compatible with my results involves the raising of *wh*-words to SpecFocP first and eventually the raising of (the highest) *wh*-word to SpecCP.

Finally, fillers containing split and non-split *wh*-clusters (series 14) demonstrate that *wh*-elements can be separated without becoming fully unacceptable. Again, such data can be explained only if it is assumed that *wh*-words do not necessarily occupy the same syntactic position.

The fillers in this experiment were not planned to be the main part of this study, but rather to provide insight into the appropriate syntactic structure of *wh*-interrogatives in Bulgarian under the formal assumptions adopted in this work. Although their analysis can be taken only as a guideline, it seems plausible to believe that the traditional generative structure proposed for multiple *wh*-interrogatives might benefit from a revision. It cannot be accidental that all the results obtained from the fillers point in the same direction. What is more, they are compatible with the findings obtained by the main part of this experiment. I conclude,

therefore that this first step of the research presented in this work supports the following major characteristics regarding the syntax of *wh*-interrogatives in Bulgarian:

i. Superiority is an important, but insufficient constraint to define the ordering of *wh*-words in multiple constituent questions.

ii. The ordering of the *wh*-elements at the beginning of multiple questions is further determined by an animacy hierarchy imposed on the moved *wh*-elements, where there is a clear preference for animate *wh*-words to precede non-animate ones.

iii. *Wh*-words are not all moved to the same syntactic position. Only the first/highest *wh*-element raises to SpecCP, the rest remain in the specifier of an internal focal projection. Therefore the C^0 head in Bulgarian is of the type ‘attract-one’ rather than ‘attract-all’.

iv. Lastly, the inherent focal nature of *wh*-phrases in Bulgarian plays a critical role for their movement. I follow Izvorski (1995) in assuming that there is a clause-internal focal projection in Bulgarian and I further assume that it is of the type ‘*Attract* - all’. In contrast, the interrogative C^0 is of the type ‘attract-one’, similarly to English and needs only one element in its specifier.

CHAPTER IV

EXPERIMENT 2

1. Experiment 2. The problem

Although the results of experiment 1 were very consistent, and supported my working hypothesis, two findings were unexpected. First, the combined action of the Superiority principle and the animacy-based hierarchy predicts that the sentences containing two inanimate interrogative arguments would behave similarly to the ones containing two animate ones. However, this does not seem to be the case on the basis of the data gathered in experiment 1. The Superiority violating version of the items containing two inanimate interrogatives was rated significantly higher than the one obeying Superiority. Second, the preference for the Superiority violating version of the sentences in the combination of an internal animate argument and an adjunct was unexpected as well, since the results obtained to this point would predict that the preferred order would be one where the animate argument precedes the adjunct. In order to shed light on those unforeseen data from the first study, a second experiment was designed. Similarly to experiment 1, it was a sentence judgment task that aimed to discover the preferred order of *wh*-phrases in multiple *wh*-interrogatives in Bulgarian. The main goal of the continuation of this study was to further examine the unexpected findings resulting from the first experiment and also to assess whether the length of the *wh*-phrase is related to its positioning. In experiment 2, the following changes were adopted:

i. Given that the sentences in experiment 1 were presented without a context, when a multiple *wh*-question can clearly be better interpreted within a certain situation, a context was provided for all target sentences and fillers in order to make them seem more natural and easier to interpret. The context was kept the identical for the different variants of the same item.

ii. In order to explore whether the *wh*-word *koj*, 'who', has a special status among the interrogative words⁶⁹, the animate internal argument *kogo*, 'whom', was substituted with

⁶⁹ Recall Pesetsky's idea that the agentive *wh*-subjects must always precede the rest of the *wh*-phrases in a multiple *wh*-interrogative.

koj 'who', in half of the sentences where such an exchange was possible⁷⁰ (i.e. *Whom do you see where? – Who do you see where?*). Such a substitution is very frequent in colloquial language as it is a natural continuation of the process of case elimination in Bulgarian.

iii. With the aim to discover whether the shorter length of the interrogative pronoun *koj* 'who', is a factor in the ordering of the *wh*-elements at the beginning of the interrogative, two new conditions were added. They consisted of sentences containing the interrogative word *kak* 'how' and an external or internal animate argument. The interrogative pronoun *kak*, 'how', is the one closest in length to *koj*, 'who'. Similarly to the rest of the items, half of the internal animate interrogatives were *kogo*, 'whom', and the other half were *koj*, 'who'.

iv. With the aim of an easier comprehension, sentences were shortened by eliminating certain adjuncts and embedded clauses.

v. Finally, subjects were additionally asked to provide an answer to all the questions in order to control that the sentences were understood as intended.

2. Method

2.1. Subjects

Ninety-seven native speakers of Bulgarian, aged 18 to 50, participated in this study. Of them, 43 subjects wrote the A version of the experiment and 54 completed the B version. Participants were recruited at the University of Sofia, Bulgaria; the New Bulgarian University in Sofia; the Centertown Communities of Sofia and also in the Bulgarian Community in Ottawa, Canada. Their participation was voluntary.

2.2. Stimuli

Ten different types of conditions were used, separated into groups, according to the type and combination of *wh*-words at the beginning of the question. As in experiment 1, the stimuli were divided into three main types as follows.

⁷⁰ Examples with *koj*, 'who', substituting for *kogo*, 'whom', are also used as colloquial speech data in Billings and Rudin (1994).

A) Items where the two *wh*-expressions were an external and an internal argument respectively (*Who watches what on TV?*);

B) Items where both *wh*-expressions were internal arguments (*What did you give to whom?*); and

C) Items, where the two *wh*-words were an adjunct and an argument (*Who goes where for the vacation?*).

The three types of conditions were further divided into subgroups based on the animacy feature of the arguments. Each condition had two variants: one where the order of the two *wh*-words obeyed Superiority and one where the Superiority constraint was violated. Also, as already mentioned, in half of the items, the animate internal argument *kogo*, ‘whom’, was replaced by *koj*, ‘who’. Finally, two more conditions containing the adjunct *wh*-word *kak*, ‘how’ were added in group C. All types of conditions are presented below. Examples in (a) show the version of the sentence that obeys the Superiority restriction and in (b) the one that violates it is illustrated. Both versions share the same intended interpretations. A declarative is used at times to illustrate the underlying position from which the *wh*-phrase has moved.

A. EXTERNAL + INTERNAL ARGUMENT⁷¹

(1) **External animate & internal inanimate**

Context: *I am really interested to know how you see things.*

a) *Koji kakvoj t_i šte raboti t_j v blizko bādešte?*
 Who what will work_{3p.sg.} in near fuure
 ‘Who will do what in the near future?’

b) *Kakvoj koji t_i šte raboti t_j v blizko bādešte?*
 What who will work_{3p.sg.} in near fuure

⁷¹ There were no conditions with inanimate external and internal arguments, since this would lead to a repetition of the same *wh*-word at the beginning of the question, which is unacceptable.

(2) **External animate & internal animate**⁷²

Context: *So, who do I bet for?*

a) *Obiknoveno koji kogoj t_i pobeždava t_i na poker?*
Usually who whom beats_{3p.sg.pres.} on poker
'Usually who beats whom when playing poker?'

b) *Kogoj koji t_i pobeždava t_j na poker?*
Whom who beats_{3p.sg.pres.} on poker

(3) **External inanimate & internal animate.** The examples in a'' and b'' in what follows illustrate the substitution of *whom* by *who*.

Context: *Speak slowly. What happened at the playground?*

a') *Kakvo_i kogoj t_i e udarilo t_j po vreme na mača?*
What whom Aux. hit_{p.p.3p.sg.} on time of game
'What hit whom during the game?'

a'') *Kakvo_i koj t_i e udarilo t_j po vreme na mača?*
What who Aux. hit_{p.p.3p.sg.} on time of game
Declarative: 'A ball hit Peter.'

b') *Kogoj kakvo_i t_i e udarilo t_j po vreme na mača?*
Whom what Aux. hit_{p.p.3p.sg.} on time of game

b'') *Koj kakvo_i t_i e udarilo t_j po vreme na mača?*
Who what Aux. hit_{p.p.3p.sg.} on time of game

⁷² The substitution of *kogoj*, 'whom', by *koj*, 'who', in this condition would result in a repetition of the *wh*-word in the beginning, since the higher *wh*-element is an external animate argument. Consequently, such a replacement does not seem to be used frequently (if at all) in colloquial language. Since repetition of the *wh*-word in the beginning is unacceptable (Billings and Rudin, 1994; Bošković, 2002a among others), this condition type was not further split into two subgroups.

B. TWO INTERNAL ARGUMENTS

(4) Inanimate & animate

Context: *This is a very unusual place to buy presents.*

- a') *Kakvo_i na kogo_j kupuvash t_i t_j ot tozi magazin?*
 What to whom buy_{2p.sg.} from this store
 'What do you buy for whom from this store?'

- a'') *Kakvo_i na koj_j kupuvash t_i t_j ot tozi magazin?*
 What to who buy_{2p.sg.pres.} from this store
 Declarative: You buy candy for Mary from this store.

- b') *Na kogo_j kakvo_i kupuvash t_i t_j ot tozi magazin?*
 To whom what buy_{2p.sg.pres.} from this store

- b'') *Na koj_j kakvo_i kupuvash t_i t_j ot tozi magazin?*
 To who what buy_{2p.sg.pres.} from this store

(5) Two internal animate arguments⁷³

Context: *I got to know that yesterday a decision was reached in the trial for the custody of the children and the dog.*

- a) *Koj_i na kogo_j prisādi sadijata t_i t_j ?*
 Who to whom adjudicated judge-the
 'Who did the judge adjudicated to whom?'

Declarative: The judge adjudicated the children to their mother and the dog to the father.

- b) *Na kogo_j koj_i prisādi sadijata t_i t_j ?*
 To whom who adjudicated judge-the

⁷³ In this condition group the substitution of one of the animate arguments 'whom', with 'who', is mandatory, as otherwise, there will be a repetition of the interrogative words in the beginning which would be automatically deemed as unacceptable.

(6) **Two internal inanimate arguments**⁷⁴

Context: *It seems that our suppliers are lying to us that there are no imported products from China...*

- a) *Kakvo_i s kakvo_j snabdjava dostavčikāt t_i t_j na konkurencijata?*
What with what supplies deliverer-the of competition-the
'What does the competitor delivery guy supply with what?'
- b) *S kakvo_j kakvo_i snabdjava dostavčikāt t_i t_j na konkurencijata?*
With what what supplies deliverer-the of competition-the

C. ARGUMENT + ADJUNCT

(7) **External animate argument & adjunct – where**

Context: *Well, let's make the schedule for the summer.*

- a) *Koji_i kade_j t_i šte xodi t_j na počivka?*
Who where will go on vacation
'Who will go on a vacation where?'
- b) *Kade_j koji_i t_i šte xodi t_j na počivka?*
Where who will go on vacation

(8) **Internal animate argument & adjunct – where**

Context: *What?! I didn't hear the news.*

- a') *Kogo_i kade_j e vidjala Maria vcera t_i t_j*
Whom where Aux. see_{p.p.3p.sg.fem.} Maria yesterday
'Yesterday, who did Maria see where?'
- a'') *Koji_i kade_j e vidjala Maria vcera t_i t_j*
Who where Aux. see_{p.p.3p.sg.fem.} Maria yesterday

⁷⁴ Note that the example in (b) involves a repetition of the same interrogative form, as both arguments are inanimate. Such a repetition cannot be avoided as in the previous example.

b') *Kāde_j kogo_i e vidjala Maria vcera t_i t_j*
 Where whom Aux. see_{p.p.3p.sg.fem.} Maria yesterday

b'') *Kāde_j koji e vidjala Maria vcera t_i t_j*
 Where who Aux. see_{p.p.3p.sg.fem.} Maria yesterday

Parallel to the sentences in (7) and (8), two additional conditions containing an adjunct *kak*, 'how' were added to this group. The new conditions aimed to verify whether the length of the interrogative word was of critical importance. Examples are provided in (9) and (10) below.

(9) **External animate argument & adjunct – how**

Context: *So, what are the results from the candidates' questionnaires?*

a) *Koji kak_j t_i e naučil za tazi rabota t_j?*
 Who how Aux. known about this job
 'Who knew about this job and how?'/ 'How did every candidate know about this job?'

b) *Kak_j koji t_i e naučil za tazi rabota t_j?*
 How who Aux. known about this job

Declarative: Ana knew about it through a newspaper ad and Peter heard about it on the radio.

(10) **Internal animate argument & adjunct – how**

Context: *So, what is the rumor, tell me.*

a') *Kogo_i kak_j sa posreštnali t_i na garata t_j?*
 Whom how Aux. received_{p.p.pl.} at station-the
 'Who did they receive at the station and how?'

a'') *Koji kak_j sa posreštnali t_i na garata t_j?*
 Whom how Aux. received_{p.p.pl.} at station-the

b') *Kak_j kogo_i sa posreštnali t_i na garata t_j?*
 How whom Aux. received_{p.p.pl.} at station-the

b'') *Kak_j* *koi_i* *sa* *posreštnali* *t_i* *na* *garata* *t_j?*
How who Aux. received_{p.p.pl.} at station-the

In summary, there were three groups of conditions for a total of ten subtypes of *wh*-combinations. Each condition subtype contained four items. In half of the sentences where an animate internal argument was a *wh*-expression, the accusative form of the pronoun (*kogo*, ‘whom’) was substituted with the nominative (*koj*, ‘who’). As in experiment one, each sentence had two versions: one obeying the Superiority restriction and one violating it. Lastly, each item was introduced by a short context which aimed to put the items in a context and facilitate their relevant interpretation. The context was kept identical for different versions of the same condition. Again, stimuli were distributed using the Latin square design and items from each pair were split. Thus, a participant only saw either the item obeying Superiority or the one violating the Superiority constraint, but never both items. The same was valid for the cases when *kogo* ‘whom’ was substituted by *koj* ‘who’ as well. A total of 32 target sentences were used in each version of the test⁷⁵. The stimuli were randomized, such that sentences of the same group or type did not appear together or too close to one another. However, items appeared in the same order in the two versions of the test in order to avoid the creation of an effect of version due to a different order of the items.

In addition to the target sentences, 28 fillers were added in each questionnaire. As in experiment 1, the selection of fillers was not random, and intended to provide further insights into the possible syntactic structure of questions in Bulgarian. Below, I briefly present the fillers relevant to this discussion⁷⁶.

(11) **Unacceptable control sentences**

a) **Li* *Ivan* *xodi* *nikoga* *na* *ne* *počivka?*
Q Ivan goes never to Neg vacation
Intended meaning: ‘Does Ivan never have a vacation?’

⁷⁵ Given the clear-cut results for the conditions containing an external animate argument (series 1.1 – 1.2; 2.1 - 2.2), and two internal animate arguments (series 5.1 – 5.2), the number of items of these groups was reduced to two in order to shorten the otherwise excessively long questionnaire.

⁷⁶ Another group of fillers contains negative and alternative *y/n* questions, as well as a few short dialogues, which are relevant for the discussion of focus-related phenomena observed in polar questions in Bulgarian. I will leave the analysis and discussion of these two groups of fillers for the next chapter.

- b) **Šte s korab li pātuvaš?*
 Will with ship Q travel_{2p.sg.}
 Intended meaning: ‘Are you going to travel by sea?’

The examples above were used as unacceptable control sentences, as the interrogative particle *li* in (11a) is misplaced and the word order in (11b) is wrong.

(12) **Multiple *wh*-questions with added interrogative particle *li***

- a) *Koj li kogo e sreštnal na onova parti?*
 Who Q whom Aux. meet_{p.p.sg.} at that party
 ‘Who could have possibly met whom at that party?’

- b) *Koj kogo li e uspjat da vidi v тази бъркотия?*
 Who who Q Aux. managed to see in this mess
 ‘Who could have possibly managed to see whom in this mess?’

This type of filler was added in order to further test the co-occurrence of an interrogative particle *li* with two *wh*-words. In addition to what has been observed in experiment 1 where the *wh*-words always formed a cluster, in (12a) the *wh*-cluster is split, in contrast to (12b). Similarly to experiment 1, each of the two sentences in (12) also has a second version, where the order of the *wh*-constituents does not obey Superiority.

(13) **Split vs. non-split *wh*-cluster**

- a) *Koj dano kakvo da e nameril?*
 Who hopefully what to Aux. find_{p.p.sg.}
 ‘Who has hopefully found what?’

- b) *Koj kakvo dano da e nameril?*
 Who what hopefully to Aux. find_{p.p.sg.}

- c) *Koj za štastie kakvo na kogo e kupil?*
 Who for happiness what to whom Aux. buy_{p.p.sg.}
 ‘Who has happily bought what for whom?’
- d) *Koj kakvo na kogo za štastie e kupil?*
 Who what to whom for happiness Aux. buy_{p.p.sg.}

The addition of the series of fillers illustrated in (13) aims to further examine Lambova’s (2001, 2004) claim that *wh*-words do not necessarily form a cluster. The data obtained in experiment 1 showed that their movement to the beginning of the sentence is not due only to their focal nature, since the order of the two *wh*-words was relevant for their ratings. With these findings in mind, the examples containing three *wh*-words intend to show that this is true for a cluster of more than two *wh*-elements as well. Two *wh*-words can be easily perceived as forming a meaningful unit. In such a case, one can argue that the preference of the adjunct to occupy the final position is attributable to the interpretation of the *wh*-cluster as one meaningful constituent. However, this would be more problematic when there are three *wh*-elements involved. In such cases it is even more obvious that there are several arguments missing. Thus, a higher acceptance of the split of the *wh*-cluster could be expected if it is the case that such a split is possible in Bulgarian.

A final relevant type of filler is the combination of a *wh*-phrase, an interrogative particle *li* and a focused element. The sentences are exemplified in (14) below.

(14) **Co-occurrence of a *wh*-element, *LI* and a focused element**

- a) *Zašto li Maria ne iska da doide?*
 Why Q Maria Neg wants to come
 ‘Why could Maria possibly not want to come?’
- b) *Koga trāgva Ivan za Pariž li?*
 When leaves Ivan for Paris Q
 ‘(You want to know) when Ivan leaves for Paris.’

- c) *Koga trǎgva li Ivan za Pariž?*
 When leaves Q Ivan for Paris
 ‘(You want to know) when Ivan LEAVES for Paris?’
- d) *Zašto Maria li ne iska da doide?*
 Why Maria Q Neg wants to come
 ‘(You want to know) why MARIA doesn’t want to come?’

The filler sentences in (14a) and (14b) were added to confirm the possibility of co-occurrence of the interrogative particle *li* and a *wh*-element. This combination has already been tested in experiment 1; however, the presence of a context in experiment 2 is expected to prove its acceptability even more strongly. The higher rating of these sentences would substantiate the fact that not only the *wh*-element (14a), but the whole clause (14b) can be interpreted as a focused constituent. In addition to that, filler sentences in (14c) and (14d) contain an explicitly focused element after the *wh*-phrase. The comparison between these two types of fillers aims to verify if the addition of another focused element is possible and if so, whether there is a preference for this element to be the verb (14c) or one of the verb’s arguments (14d).

In sum, 32 target and 28 filler sentences were used for the second experiment. The target sentences aimed to collect evidence about the preferred order of the *wh*-elements and the importance of the length of the first *wh*-element, and to assess whether the interrogative word *koj*, ‘who’, occupies a ‘special status’ within the hierarchy of interrogative elements.. The fillers were intended to bring further evidence to support the proposed syntactic structure of interrogatives in Bulgarian.

Participants in the second experiment received the same instructions as those who participated in the first one. They were asked to rate all sentences on a scale from 1 to 4, where 1 was the lowest and 4 was the highest score. The four grades and their meaning appeared on top of each page of the questionnaire to avoid confusion. In addition, the participants were given an example of what could be considered an acceptable sentence in a specific context/situation (2) and were also given an example of how to point out a specific context/situation. The participants were also required to provide a possible answer to the questions from the test. The goal of the production tasks was to ensure that participants

understood the examples as they were originally intended and to further examine the preferred sentence structures.

2.3. Procedure

After each sentence there appeared a short table containing three rows. The first required the participants to rate the sentence. The substitution of circling the number with writing it was intended to reduce the number of confused grades. The second row asked them for a possible answer to the question they were grading and the third row asked for a required context or a better paraphrase of the sentence. As in experiment 1, the instructions were to rank the sentences based on their acceptability in everyday use.

3. Analyses

The main goal of the second experiment is to bring more evidence for the preferred order of *wh*-elements, thus showing whether the hypothesis that a Superiority restriction together with a hierarchy between *wh*-elements accounts for the order of *wh*-words in Bulgarian. The data obtained in experiment 1 have led to the conclusion that it seems that an animacy-based hierarchy, coupled with the Superiority restriction, are two basic rules interacting with regards to the order of *wh*-words in the beginning of the sentence. However, a few questions have remained unexplained following the first experiment. On the one hand, the finding that in the combination of two internal inanimate arguments the Superiority violating order is significantly preferred over the one obeying such a restriction was unexpected. A result of this type raises questions as to the role of focus in interrogatives, as well as whether multiple *wh*-questions presented out of context can be easily interpreted correctly. On the other hand, the problem of whether the animate external argument (expressed by the interrogative word *koj*, ‘who’) has a special status among interrogative pronouns has not been fully addressed in the first experiment. It could be the case that such a *wh*-word always must be placed first, independently of the fact that in colloquial language it could also be used to express the internal animate argument. In such circumstances, *koj*, ‘who’, stands for an argument originated in a syntactically lower position. Therefore, if there is a special preference for *koj*, ‘who’, to be placed first, then Superiority violating conditions in a combination of an external

inanimate argument and an internal animate one expressed by *koj*, ‘who’, will be highly preferred. Finally, the interesting observation that *koj*, ‘who’, is in fact the shortest argument *wh*-word in Bulgarian could be another possible indication with regards to the ordering of *wh*-elements in this language. Bulgarian is well known for being a language exhibiting the Tobler-Mussafia effect, often interpreted in prosodic terms (Franks, 1998, 2005c, among others). Hence, it would not be entirely unexpected if the language were to exhibit other prosodic phenomena as well. One of them could eventually be that the order of *wh*-elements is influenced by a constraint on the length of the *wh*-phrase. Thus, the addition of the two new condition types containing the adjunct *kak*, ‘how,’ could bring evidence in favour or against a constraint of the type: *shorter first!* Lastly, the fillers of the second experiment are intended to bring evidence in favour of the possibility of breaking a *wh*-cluster containing two or three *wh*-elements, as well as to shed light on the syntactic position of the fronted *wh*-words.

4. Results and discussion

The principal objective of this second experimental study was to confirm the findings of the first one and to further investigate the particularities in the order and structure of *wh*-interrogatives in Bulgarian. As in experiment 1, the study focused on factors such as type of argument (internal vs. external vs. adjunct) and their features ([+animate]/[-animate]). It also aimed to examine the possibility of a ‘special status’ for *koj*, ‘who’, as well as to investigate the importance of the length of the first interrogative word. For this purpose, two changes were made to the conditions from experiment 1. First, a substitution of the accusative form *whom* by the nominative form *who* was done in half of the conditions containing animate internal arguments. Second, two new conditions were added, containing the adjunct *kak*, ‘how’ and an external or internal argument. As a consequence, a total of ten types of conditions were used. As before, each item had two variants, which were assigned to two test versions (A and B) by using the Latin square design. For statistical purposes, ratings above and below two standard deviations of the mean were excluded and subjects whose results had less than 75% of the answers were not considered. Ninety-seven native speakers of Bulgarian aged 18 to 50 participated in this second study. Of them, 43 subjects wrote version A of the experiment and 54 completed version B, respectively. Both groups contained people who have lived or currently live abroad and have been exposed to or use in their everyday life languages other

than Bulgarian. No difference was found between subjects living in Bulgaria and those living abroad. Such a finding was not unexpected, as all participants were native speakers of Bulgarian and all of them have received their primary and secondary education in Bulgaria. Data provided by participants living in Bulgaria and abroad will be analyzed together.

4.1. Results for experimental stimuli

The average ratings for each group of conditions are presented in Table 1 below. The OK sign indicates that Superiority is obeyed and the star (*) represents cases when Superiority is violated. The abbreviations are to be read as in experiment 1: **EA** – external animate; **EI** – external inanimate; **II** – internal inanimate; **IA** – internal animate; **Adj.** – adjunct:

	A: External and internal argument			B: Two internal arguments			C: Adjunct (<i>where/ how</i>) and argument			
	1. EA+II	2. EA+IA	3. EI+IA	4. II+IA	5. IA+IA	6. II+II	7. Adj+EA (<i>where</i>)	8. Adj+IA (<i>where</i>)	9. Adj+EA (<i>how</i>)	10. Adj+IA (<i>how</i>)
Superiority OK (#.1) ⁷⁷	3.77	3.74	2.99	2.78	3.34	2.28	3.96	3.44	3.77	3.69
Superiority * (#.2)	2.44	2.53	2.94	3.17	2.57	2.25	2.81	3.07	2.51	2.64

Table 1: Summary of results experiment 2: mean ratings for target sentences

Table 1 above shows mean ratings for all types of conditions. As can be observed by simply comparing the mean ratings, in the conditions of type A (external plus internal argument) and C (adjunct plus an argument) the general preference is for the sentences that obey Superiority. In contrast, in the items from group B (two internal arguments), results are slightly different. The Superiority obeying order is preferred in the case of two internal animate arguments. In contrast, when there are an animate and an inanimate argument, the preferred order is the one violating the Superiority restriction. In addition, the combination of two internal inanimate

⁷⁷ The (#.1)/(#.2) signs show how conditions were numbered for statistical purposes. It reflects (#) the number of the item (1-10 – depending of the combination of the *wh*-phrases) and whether it obeys (.1) or disobeys (.2) the Superiority restriction. Thus, condition 1.1 is of the type external animate plus internal inanimate argument and it obeys Superiority, and condition 1.2. is the same combination of arguments but the order of the *wh*-phrases violates Superiority.

arguments shows extremely close results, which suggests that both orders are equally accepted. A series of statistical tests using the statistical software SPSS 17 were further conducted in order to assess whether such differences are significant.

An analysis of variance was run to compare group means, the dependent variable was the acceptability rating of the items. The results shown in the summary table suggest that animacy could be interpreted as being an important factor in deciding the order of the *wh*-words, thus supporting the findings from experiment 1.

Results for conditions 1, 2 and 3

A two-way ANOVA was conducted for conditions **1 to 3** (external & internal argument). The two factors were type of argument and Superiority. The type of argument factor consisted of three levels that correspond to the three subgroups in conditions of type A: **i.** external animate and internal inanimate argument; **ii.** external animate and internal animate argument; and **iii.** external inanimate and internal animate argument. The Superiority factor consisted of two levels: the compliance to or the violation of the Superiority constraint. The ANOVA revealed that there is a significant main effects of argument type ($F(2, 154) = 5.033, p = .008$) and Superiority ($F(1, 77) = 131.206, p < .001$). In addition, it revealed a significant interaction between these two factors ($F(2, 154) = 53.272, p < .001$). No significant effect of version was found ($F(1, 77) = .548, p = .461$). The numbering and the ratings of these conditions are illustrated in Figure 1 below. The figure also shows the difference between items containing the accusative form for the internal animate argument *whom* (*kogo*) and those containing the substitute nominative form⁷⁸ *who* (*koj*):

⁷⁸ From this point on I will refrain from using the label *nominative* when referring to *koj* ‘who’, as *koj* only comes from the nominative form, but when substituting *kogo* is in fact used as an accusative and labeling it as nominative would be misleading.

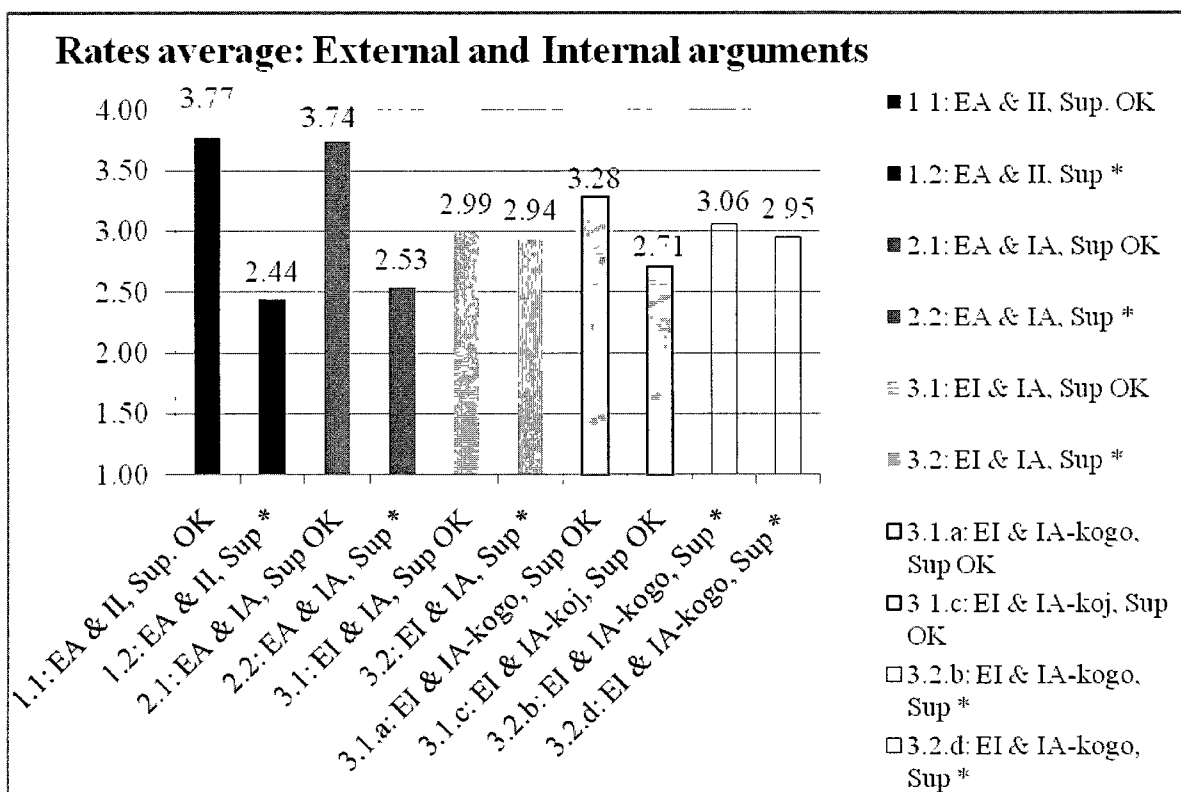


Figure 1: Items 1-2-3. Ratings of the Superiority obeying/violating conditions and the *kogo*, 'whom'- *koj*, 'who', substitution

The main effect of Superiority observed through the analysis of variance conditions in group A (external + internal argument), there is an overall preference for the Superiority obeying version of the sentences. However, the main effect of argument type demonstrates that different argument types do not exhibit uniform behaviour. In addition, the interaction of the two effects, Superiority and argument type, suggests that the two effects could be related to a certain extent. Such a possibility is not surprising, given that the Superiority preference is not identical in all subgroups. The results, shown in Table 1, reflect a bigger gap in ratings between sentences obeying and disobeying the Superiority constraint for conditions in series 1 and 2. Thus, the finding that the effect of Superiority depends on the nature of the external argument (animate, i.e. conditions 1 and 2 or inanimate, i.e. condition 3), is expected.

In addition to the analysis of variance, a series of paired samples t-tests were conducted with condition 1, 2 and 3. The overall results paralleled the data obtained in experiment 1 to a great extent. Condition 1.1 (combination of an external animate & internal

inanimate arguments obeying Superiority), was rated significantly higher than condition 1.2 (combination of an external animate & internal inanimate arguments violating Superiority) with $t(86) = 11.421, p = < .001$. The same was observed for conditions 2.1 and 2.2 (combination of an external animate and an internal animate arguments obeying and violating the Superiority restriction, respectively) with $t(87) = 10.087, p < .001$. In contrast, the preference of condition 3.1 (external inanimate and internal animate arguments obeying Superiority) over 3.2 (external inanimate and internal animate arguments violating Superiority) proved to be insignificant ($t(90) = -.215, p = .830$).

I further conducted a one-way ANOVA for condition 3, contrasting items containing the interrogative form *kogo*, ‘whom’ and the ones where *kogo* was substituted by *koj*, ‘who’. The detailed ratings for these conditions are given in Table 2 below.

A: External inanimate and internal animate arguments		
	3.a-b- EI+IA - whom	3.c-d- EI+IA – who
Superiority OK (#.1)	3.28	2.71
Superiority * (#.2)	3.06	2.95

Table 2: Condition 3: detailed ratings, *whom* vs. *who*

The analysis of variance of the sentences obeying the Superiority restriction (3.1.a/3.1.b vs. 3.1.c/3.1.d) revealed a significant main effect of argument ($F(1, 80) = 32.046, p < .001$), which shows that conditions containing *kogo*, ‘whom’ were rated significantly higher than the ones containing *koj*, ‘who’. Items violating the Superiority restriction were subject to the same analysis and showed different results. There was no significant main effect of argument type ($F(1, 85) = .218, p = .642$), thus revealing that the preference for the sentences containing *kogo*, ‘whom’ over those containing *koj*, ‘who’ was not significant.

I further conducted a paired samples t-test for condition 3, comparing separately the items containing *kogo*, ‘whom’ (condition 3.1.a and 3.1.b vs. 3.2.a and 3.2.b) from the ones containing *koj*, ‘who’ (conditions 3.1.c and 3.1.d vs. 3.2.c and 3.2.d). The tests revealed that in the case of *kogo* the preference for the version obeying Superiority was not significant ($t(83) = 1.770, p = .080$). However, the contrast of the items containing *koj*, showed to be significant ($t(83) = -2.027, p = .046$), thus showing that in this case, the substitution of the accusative

pronoun with *koj* ‘who’ has been critical. In other words, Superiority violating sentences containing the form *koj*, ‘who’, were rated significantly higher than their Superiority obeying counterparts containing the accusative form *kogo*, ‘whom.’ Nonetheless, a paired samples t-test comparing the Superiority obeying *whom*-version (3.1.a-b) to the Superiority violating *who*-version (3.2.c-d) of the condition revealed that the preference for the Superiority obeying sentences was significant, with $t(83) = 2.245, p = .027$. This last finding makes the results from this pair consistent with the findings from experiment 1, rejecting the hypothesis that *koj*, ‘who’ has a special status among the interrogative pronouns.

Results for condition 4, 5 and 6

Conditions from group B were subjected to the same analysis of variance as conditions from group A (3x2 ANOVA). For conditions **4 to 6** (a combination of two internal arguments) the overall first analysis of variance exhibited results similar to the ones observed for conditions 1, 2 and 3. It revealed a significant main effect of argument type ($F(2, 166) = 74.839, p < .001$) and Superiority ($F(1, 83) = 5.273, p = .024$). It also revealed a significant interaction between these two factors ($F(2, 166) = 53.272, p < .001$). Again, no significant overall effect of version was found ($F(1, 83) = .231, p = .632$). The main effect of Superiority suggests that, similarly to conditions in group A, there exists an overall preference for sentences obeying Superiority when compared to sentences violating this restriction. Nonetheless, the main effect of argument type reveals that all condition subtypes were not rated equally. The interaction between the two factors demonstrates (as in group A) that the effect of Superiority depends on the animate/inanimate nature of the higher *wh*-element.

Further analysis of the above conditions, however, revealed a significant effect of version for Superiority violating items in condition 4 (internal inanimate and internal animate arguments, $F(1, 78) = 1.050, p = .309$ for 4.1 and $F(1, 82) = 14.0093, p < .001$ for 4.2) and condition 6 (two internal inanimate arguments, $F(1, 92) = 5.619, p = .02$) as well.

The means of all groups of items in condition 4 were compared and one item (4.2.c) was not considered for statistical purposes, as its mean ratings were significantly lower than those of the rest of the items. Also, the means of all items from condition 6 were compared and, in order to obtain more accurate results, the two items with the lowest and highest mean ratings (6.1.b and 6.1.d, respectively) were not considered for the statistical analysis. After the

elimination of the items from conditions 4 and 6, the results from the analysis of variance of condition 4 to 6 changed slightly. Again, as was the case before the correction for version, a significant main effect of argument ($F(2, 164) = 66.192, p < .001$) was observed. The ANOVA, however, revealed only a close to significant main effect of Superiority ($F(1, 82) = 3.673, p = .059$). There was no overall effect of version observed ($F(1, 82) = 1.405, p = .239$). In addition, the two-way analysis of variance for condition 4 revealed no effect of version ($F(1, 84) = 2.067, p = .154$ for condition 4.1 and $F(1, 90) = 3.214, p = .076$ for condition 4.2) as well as for condition 6 ($F(1, 93) = .711, p = .401$ for condition 6.1 and $F(1, 93) = .020, p = .888$, for condition 6.2, respectively).

The loss of the main effect of Superiority suggests that the main effect observed in the first round of analysis was due to the rating of the excluded items. The lack of a main effect of Superiority in conditions from group B indicates that there was no overall preference for Superiority obeying sentences in items containing two internal arguments. In other words, sentences obeying the Superiority constraint and sentences violating it were rated similarly. In addition, the fact that the main effect of argument type remained significant after the exclusion of the oddly rated items revealed that different subgroups of condition of type B did not behave uniformly, which was expected.

The numbering and the ratings after the exclusions of the items in conditions 4 and 6 are illustrated in Figure 2 below. The figure also shows the difference between items containing the internal animate argument *whom* (*kogo*) and those containing the substitute form *who* (*koj*):

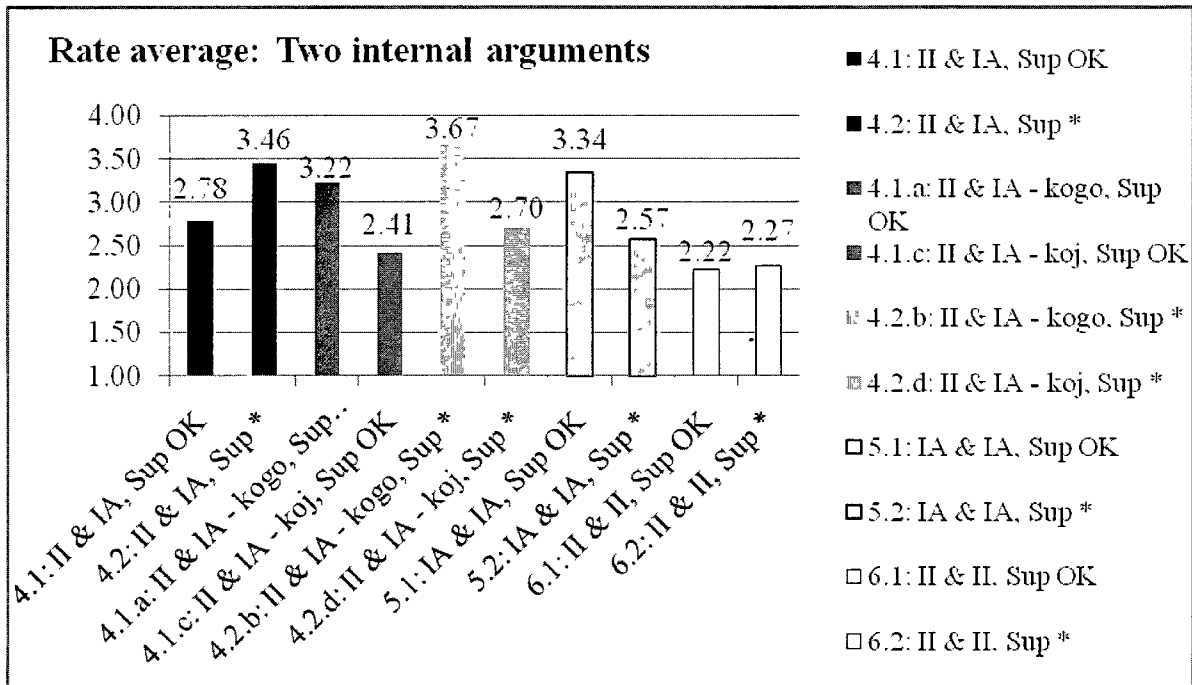


Figure 2: Items 4-5-6. Ratings of the Superiority obeying/violating conditions and the *kogo*, (whom)- *koj*, (who) substitution

As with the conditions from group A, a series of paired samples t-tests was conducted. Condition 5 (two internal animate arguments) paralleled the outcome from condition 2 (external animate and internal animate arguments). It revealed a significant preference for the version obeying Superiority of the sentences with $t(84) = 5.689, p < .001$. Thus, the outcome was consistent with the findings from experiment 1. In contrast, in condition 4 (internal inanimate and internal animate arguments) there was a significant preference for the Superiority violating version of the sentences, with $t(91) = -10.11, p < .001$. Finally, the preference for the Superiority disobeying version of condition 6 (two internal inanimate arguments) proved not to be significant with $t(93) = .448, p = .655$.

The last two findings differed from the results in experiment 1 where the difference from condition 4 showed to not be significant, in contrast to that of condition 6. I take the disparity to be due to the fact that shorter sentences and the presence of a context facilitating the right interpretation of the questions influenced the results critically. Therefore, I take the results from experiment 2 to be more accurate.

In addition to the t-tests, I further conducted two one-way ANOVAs for condition 4, contrasting items containing *kogo*, ‘whom’ to the ones containing *koj*, ‘who’. The detailed ratings of those conditions as well as their numbering are presented in Table 3 below.

	B: Internal inanimate and Internal animate arguments	
	4.a-b- II+IA - whom	4.c-d- II+IA - who
Superiority OK (#.1)	3.19	2.38
Superiority * (#.2)	3.65	3.32

Table 3: Condition 4: detailed ratings, *whom* vs. *who*

The analysis of variance for the sentences that obey Superiority (4.1.a and 4.1.b vs. 4.1.c and 4.1.d) revealed a significant main effect of argument ($F(1, 78) = 46.498, p < .001$). Such a main effect of argument type suggests that Superiority obeying sentences containing the accusative version of the *wh*-element were rated significantly higher than the ones containing the substitute form *koj*, ‘who’. Likewise, the contrast between the items violating the Superiority restriction exhibited a significant main effect of argument as well ($F(1, 82) = 98.344, p < .001$), supporting the conclusions drawn by the results of the Superiority obeying sentences.

I further conducted two paired samples t-test with condition 4, comparing separately the items containing the accusative form *kogo*, ‘whom’ (condition 4.1.a and 4.1.b vs. 4.2.a and 4.2.b) and the ones containing the substitute form *koj*, ‘who’ (conditions 4.1.c and 4.1.d vs. 4.2.c and 4.2.d). The tests from both groups revealed a significant preference of the items containing the accusative form of the interrogative ($t(81) = 6.57, p < .001$ for the Superiority obeying items and $t(36) = 3.15, p = .003$ for the ones violating Superiority).

These results demonstrate that conditions containing the substitute form of the interrogative pronoun were ranked significantly lower than the ones containing the accusative, similarly to what has been observed in condition 3 (external inanimate and internal animate arguments). In addition, the t-tests revealed that for both types of conditions (with *kogo*, ‘whom’ or *koj*, ‘who’) the preference for the Superiority violating version was significant ($t(81) = -5.801, p < .001$ for the conditions containing *kogo*, ‘whom’ and $t(37) = -6.233, p < .001$ for the items with *koj*, ‘who’). These results therefore disprove the hypothesis of the

special status of the interrogative pronoun *koj*, ‘who’, as both pronouns *koj* and *kogo* exhibit very similar behaviour. Nonetheless, these results strongly support the hypothesis of an animacy-based hierarchy among interrogative words in Bulgarian, as they bring clear evidence that animate interrogative pronouns need to be placed before inanimate ones.

Results for condition 7 and 8

For conditions 7 and 8 (a combination of an adjunct – *where* – and an external or internal animate argument, respectively) a 2x2 ANOVA was conducted. The two factors were argument type with two levels, i.e. external animate and internal animate argument and Superiority with two levels as well, i.e. obeying vs. violating Superiority.

The analysis of variance exhibited results similar to the ones observed for the previous conditions. It revealed a significant main effect of argument type ($F(1, 73) = 4.082, p = .047$) and Superiority ($F(1, 73) = 169.334, p < .001$). It also revealed a significant interaction between these two factors ($F(1, 73) = 74.348, p < .001$). The effect of version was only close to significant ($F(1, 73) = 12506.194, p = .057$), thus no conditions were eliminated. As with conditions from groups A and B, the main effect of Superiority suggests that there was an overall preference for sentences obeying the Superiority restriction. The main effect of argument type, however, reveals that conditions from series 7 were not rated identically to conditions from group 8. The interaction of these two factors indicates that the preference for Superiority obeying word order is related to the syntactic position of the *wh*-element.

Numbering and ratings of the conditions from group C are illustrated in Figure 3 below. As before, the figure also shows the difference between items containing the internal animate argument *whom* (*kogo*) and those containing the substitute form *who* (*koj*):

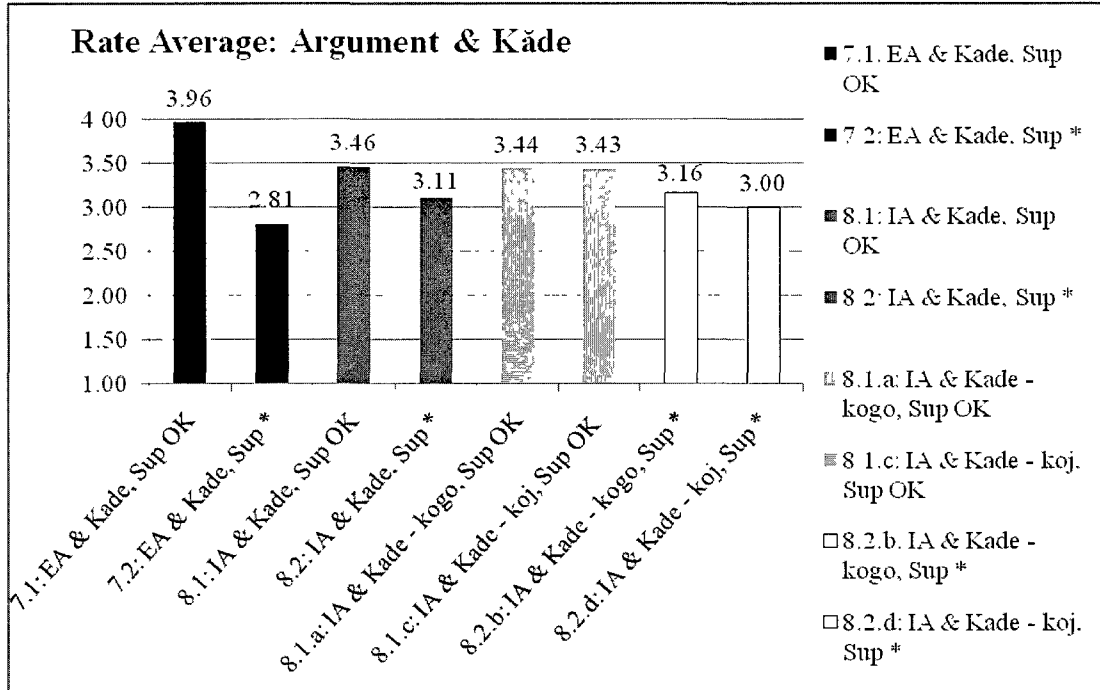


Figure 3: Items 7 and 8. Ratings of the conditions obeying/violating Superiority and the *kogo*, (whom)- *koj*, (who) substitution

The data from the ratings of conditions 7 and 8 was further subjected to paired samples t-test to check whether main effect of Superiority held for both types of conditions. The results revealed that in both conditions the version obeying Superiority of the sentences was rated significantly higher than the one violating it ($t(78) = 13.132, p < .001$ for items in condition 7 and $t(89) = 6.161, p < .001$ for condition 8).

In addition, a comparison was made between items containing the accusative interrogative pronoun (*whom*) vs. item where the accusative form has been substituted by *koj*, ‘who’. The detailed ratings for condition 8 (internal animate argument and an adjunct) are given in Table 4 below.

C: Adjunct and Internal animate argument		
	8.a-b- IA + Adj (whom)	8.c-d- IA + Adj (who)
Superiority OK (#.1)	3.44	3.43
Superiority * (#.2)	3.16	3.00

Table 4: Condition 8: detailed ratings, *whom* vs. *who*

Two one-way ANOVAs were conducted to compare the conditions containing *kogo*, ‘whom’ (8.1a-b, 8.2a-b) and *koj*, ‘who’ (8.1c-d, 8.2c-d) variant of the interrogative pronoun. The results showed that in the Superiority obeying form of the sentences there was no significant difference in rating; i.e., no significant main effect of argument was observed ($F(1, 80) = .341, p = .561$).

In the variants of the items violating Superiority, the accusative version of the sentences significantly outranked the one containing the substitute *koj* ‘who’ form ($F(1, 76) = 7.463, p = .008$). There was no significant effect of version in any of the variants ($F(1, 80) = .025, p = .875$ for the Superiority obeying items and $F(1, 76) = 1.215, p = .274$ for the ones violating Superiority).

I further compared Superiority obeying conditions with *kogo*, ‘whom’ separately (8.1a-b) and *koj*, ‘who’ (8.1c-d) to their counterparts that violate Superiority (8.2a-b and 8.2c-d, respectively). The results showed that in both cases there is a significant preference for the version obeying Superiority of the sentence ($t(78) = 3.470, p = .001$ for items containing the accusative form and $t(79) = 5.363, p < .001$ for the ones containing the substitute pronoun). Such a preference with both versions of the interrogative pronoun once again contradicted the hypothesis according to which the interrogative word *koj* ‘who’ has a special status the interrogatives. The overall preference for the word order obeying Superiority, however, differed from the results obtained in experiment 1 where there was a non significant preference for the version of the conditions violating Superiority. Again, due to the fact that target sentences were simple clauses and the introduction of the context phrase, I take the results from experiment 2 to be more precise.

Results for condition 9 and 10

Conditions 9 and 10 closely resembled conditions 7 and 8. The difference consisted in the type of the adjunct used. Instead of *where*, which was used in 7 and 8, the interrogative word was *how* (*kak*) in 9 and 10. As already mentioned, its addition aimed to verify if the length of the interrogative word could critically influence the preference in the ordering of the *wh*-phrases in the beginning of the sentence. A 2x2 ANOVA was conducted for the analysis of conditions 9 and 10. As with conditions 7 and 8, the factors were argument type with two levels, i.e. external animate vs. internal animate argument and Superiority, with two levels as well, i.e.

obeying vs. violating the Superiority restriction. The analysis of variance for conditions 9 and 10 (external animate argument plus adjunct *how* and internal animate plus adjunct *how*) revealed no significant main effect of argument type ($F(1, 92) = .238, p = .627$). However, there was a significant main effect of Superiority ($F(1, 92) = 270.918, p < .001$). There was no significant effect of version observed ($F(1, 92) = .023, p = .881$). The main effect of Superiority indicates that there was an overall preference for Superiority obeying sentences in both condition types. The lack of a main effect of argument type, however, reveals that the two types of conditions received very similar ratings.

The numbering and the ratings of the conditions from this group are illustrated in Figure 4 below. As before, the figure also shows the difference between items containing the internal animate argument *kogo*, 'whom' and those containing the substitute form *koj*, 'who'.

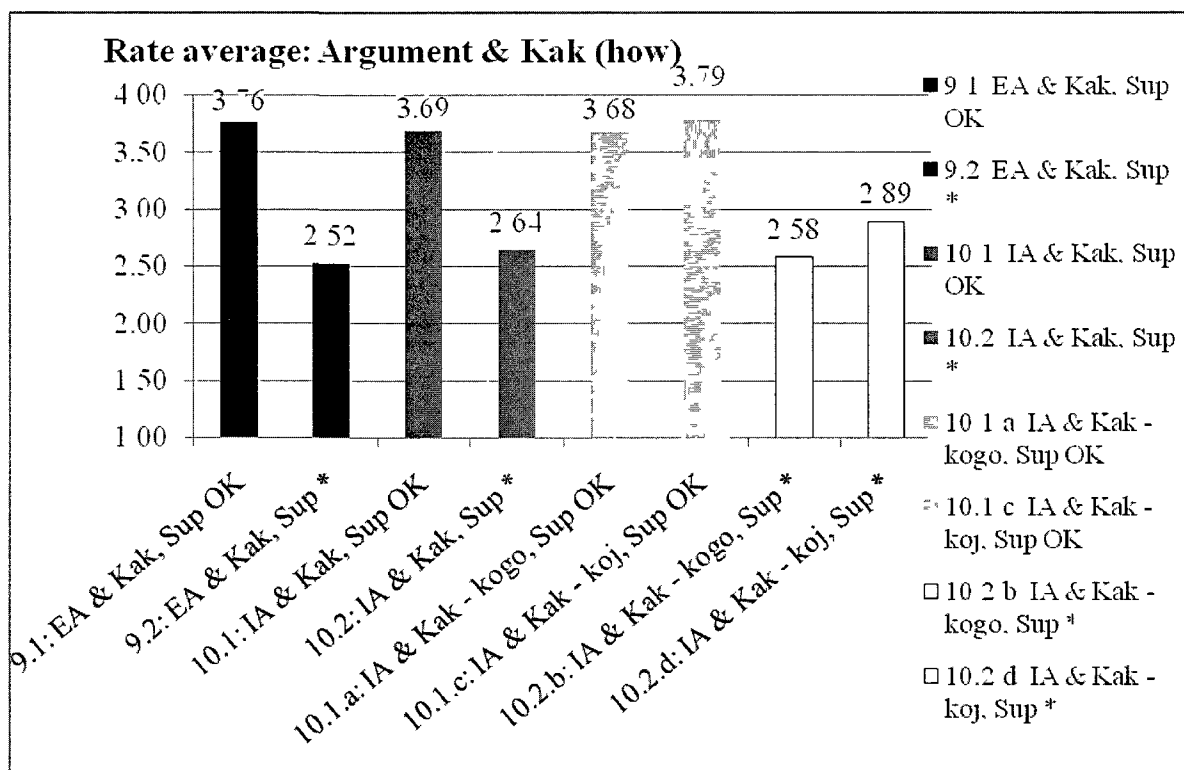


Figure 4: Items 9 and 10. Ratings of the Superiority obeying/violating conditions and the *kogo*, (whom)- *koj*, (who) substitution

The mean ratings of the conditions were subjected to a paired samples t-test comparing the Superiority obeying items to the ones violating Superiority. The analysis revealed that in both

conditions the version obeying Superiority of the sentences was significantly preferred ($t(94) = 14.657, p < .001$ for condition 9 and $t(93) = 13.457, p < .001$ for condition 10). These results parallel the ones obtained in conditions 7 and 8, and therefore refute the idea that the length of the interrogative word could influence the preferred order of the interrogative pronouns.

I further conducted another series of one-way ANOVA tests, comparing items containing the accusative form of the interrogative (10.1a-b and 10.2a-b) and those with the substitute *koj*, ‘who’ (10.1c-d and 10.2c-d). The analysis of variance revealed that there was no main effect of argument when comparing the two versions of condition 10 that obey Superiority ($F(1, 77) = 2.301, p = .133$). There was no effect of version ($F(1, 77) = 1.145, p = .08$) either. Thus, there was no significant difference in the grading of the versions of the condition containing *kogo*, ‘whom’ and *koj*, ‘who’. In contrast, there was a significant main effect of argument comparing the two Superiority violating versions of condition 10 ($F(1, 80) = 6.288, p = .014$). As in the conditions of this group obeying Superiority, there was no significant effect of version ($F(1, 80) = 2.302, p = .133$). The Superiority violating version containing the substitute form of the *wh*-element parallels the result obtained in condition 3. The substitution of the accusative pronoun with *koj*, ‘who’ significantly improved the sentence. However, a paired samples t-test comparing separately 10.1a-b to 10.2a-b (conditions containing *koj*, ‘who’) and 10.1c-d to 10.2c-d (conditions containing *kogo*, ‘whom’) revealed that in both cases – with either the accusative or substitute form of the interrogative pronoun – the condition obeying Superiority was graded significantly higher ($t(82) = 10.928, p < .001$ for the conditions containing the accusative pronoun and $t(77) = 11.111, p < .001$ for the sentences containing the substitute interrogative form). Therefore, the overall general preference for a word order defined by Superiority leads to the rejection of the hypothesis stating that the interrogative pronoun *koj*, ‘who’ has a special status and must always appear first in the *wh*-cluster.

Lastly, the results from the analysis of conditions 9 and 10 paralleled the outcome of conditions 7 and 8, once again indicating that the hypothesis that a rule of the type ‘*Shortest First!*’ is not valid for Bulgarian.

4.2. Items discussion: Superiority, animacy and the order of *wh*-phrases

The results obtained in experiment 2, resembled to a large extent the results obtained in the first experiment. Superiority was demonstrated to be an important principle when ordering the *wh*-phrases at the beginning of a multiple interrogative. However, as before, this was not the case overall but was rather observed in combinations where the higher *wh*-element was animate. The ordering of *wh*-phrases when the higher *wh*-word was inanimate clearly showed that animacy plays a critical role.

The results from conditions 1, 2 and 3 paralleled their counterparts from experiment 1. In the sentences where the higher *wh*-phrase was animate (**condition 1:** external animate and internal inanimate and **condition 2:** external animate and internal animate), Superiority was strictly obeyed and Superiority violating sentences were rated significantly lower. In contrast, in the sentences where the higher *wh*-phrase was inanimate and the lower one was animate (**condition 3:** EI + IA), ratings of Superiority obeying and violating sentences were not significantly different, thus showing that animacy plays a critical role in ordering the interrogative words. The conclusions deducted from the results of conditions in group A were akin to those suggested in the proposal developed by Billings and Rudin (1994). As these authors pointed out, the contrast between sentences of the type of conditions 1 and 2 on the one hand, and sentences like condition 3, on the other, could be attributed to the fact that speakers typically expect agentive subjects to be animate, rather than inanimate arguments. Nonetheless, although the results obtained through the conditions of group A confirm the hypothesis that there is an animacy-based hierarchy of *wh*-elements in Bulgarian, such an approach cannot account for the complete set of data obtained.

A novelty in experiment 2 was the introduction of items where the accusative interrogative pronoun (*kogo-whom*) corresponding to the internal animate argument was substituted by *koj*, 'who'. This replacement was carried out in half of the sentences in condition 3. Such a substitution is very colloquial and is banned by prescriptive grammar. Despite this, it is very frequent in spoken language. Given that the instructions of the experiment clearly asked subjects to rate sentences as they 'sound' to them, I expected such a substitution to not be problematic. However, as the test was paper-and-pencil, I anticipated certain preference for the accusative form. The ratings of the two versions of these sentences were not parallel, as illustrated in the results section above. Sentences obeying Superiority that contained the

accusative form of the pronoun were rated significantly higher than their counterparts containing the substitute colloquial version of the interrogative. This data shows that the colloquial version of the pronoun was not the preferred one when the sentence obeyed the syntactic restriction. This finding was not surprising, as participants, although asked to rate sentences as they used them in everyday life, were evaluating written language. In contrast, Superiority violating sentences containing the accusative and the substitute form of the interrogative were rated very similarly and no significant difference between these two groups was observed. Such a similarity suggested that speakers are perhaps rather indifferent about the form of the interrogative pronoun they use if the sentence does not obey the Superiority restriction. The comparison between the sentences containing the accusative pronoun was comparable to the one observed in condition 3 in the first experiment. There was a preference of the version of the sentence obeying Superiority which was not significant. I interpret such a result to be an outcome of the fact that the animate argument is syntactically lower, but hierarchically higher. Thus this result suggests that animate arguments tend to be ordered first, even when this violates a basic syntactic restriction as Superiority. Finally, the comparison between the versions of condition 3 containing *koj*, ‘who’ was quite interesting, as the variant of the sentence that violates Superiority was rated significantly better than the one that obeys it. This unexpected preference for the word order that violates Superiority was clearly due to the substitution of the accusative pronoun with the more colloquial *koj*, ‘who’. As a result, such a change opens the possibility to assume that *koj*, ‘who’ might have a special status among the rest of the interrogatives. However, the fact that the sentences obeying Superiority that contained the accusative interrogative pronoun were rated significantly higher than the ones containing the substitute pronoun that violate Superiority weakens the idea of such a special status. Thus, the higher rates of the sentences violating Superiority that contain *koj*, ‘who’, can be attributed to two facts. First, speakers might prefer them to the Superiority obeying ones, as the form *koj*, ‘who’ is typically used to substitute animate external subjects. Given that, they might have preferred an order reflecting an external argument, since such an order would be the one corresponding to normal use of the interrogative form. Second, the higher ratings of the sentences violating Superiority that contain the substitute interrogative pronoun could be easily explained based on the fact that they were not significantly different from their accusative counterparts. It can be assumed, therefore, that participants were not

concerned about the form of the interrogative once Superiority is violated. Thus, subjects rated sentences similarly, independently of the number of rules they violate.

The results obtained by conditions 4, 5 and 6 were somewhat similar to the ones obtained for the previous group. Similarly to conditions 1, 2 and 3, there was a significant main effect of argument. However, there was only close to significant main effect of Superiority, thus showing that the combination of two internal arguments does not function entirely analogously to the combination of an external and an internal argument. As in experiment 1, condition 5 (two internal animate arguments) paralleled condition 2 (external animate and internal animate), once again showing that when the higher interrogative pronoun stands for an animate argument, the order of the *wh*-elements strictly follows Superiority. The results from condition 5 clearly contradict the hypothesis put forward by Billings and Rudin (1994) who claimed that the order of two internal *wh*-arguments is free. Consequently, their analysis cannot account for the whole set of data collected through the experiments.

Differently from what has been observed in experiment 1, the data obtained from condition 6 (two internal inanimate arguments) showed a general preference for the version of the sentences obeying Superiority⁷⁹. However, such a preference was not significant. The shift in the results was due to the changes introduced in the experiment: shorter and simpler sentences and addition of a context. Therefore, due to the fact that the data from experiment 1 could be a result of a misunderstanding, and also in view of the fact that multiple interrogatives are more easily and correctly interpreted within a context, I take the data from experiment 2 to be more accurate than the ones from the previous study. In addition, as there were neither corrections nor answers of the sentences containing only one *wh*-element, I exclude the possibility of misunderstanding these examples in experiment 2. Nonetheless, the lack of a significant difference between the Superiority obeying and violating versions of the sentences in condition 6 is still unexpected, as the Superiority restriction together with the animacy-based hierarchy predict that the combination of two internal inanimate arguments should obey Superiority strictly. Several hypotheses can be made to explain these unexpected results.

First, one could hypothesize that the Superiority restriction is valid only when the *wh*-phrases stand for animate arguments. Inanimate arguments, then, could be ordered any way

⁷⁹ Recall that in experiment 1, the results from condition 6 were unexpected and sentences violating Superiority were rated significantly higher than the ones obeying that constraint.

the speaker wishes. Such an analysis has two major disadvantages, however. On the one hand, one would expect this phenomenon to be observed in other languages as well, which does not seem to be the case.

- (15) *This producer supplies our store with coffee.*
- (16) **?This producer supplies with coffee our store.*
- (17) *What does this producer supply with coffee?*
- (18) **? With what does this producer supply what?*

The English examples in (15) and (16) clearly show the preferred order of the arguments in the declarative. The interrogatives in (17) and (18) illustrate that *wh*-phrases in that language obey the Superiority restriction, even though they are both inanimate. It has to be admitted that colloquial Bulgarian allows sentences with word order like the one in (16) in certain cases. However, the preferred order of arguments is typically Direct Object (DO) > Indirect Object (IO). In addition, the arguments' shift is not available with all the verbs taking two internal arguments⁸⁰ and is also discourse-related. It would most frequently happen in a context in which *the store* is the information focus of the clause. In the current experiment though, context sentences did not favour such a shift, but rather introduced a situation where the typical DO > IO order is expected. Therefore, I take the judgments obtained through the current study not to reflect the free order of arguments in the declarative, but to indicate that Superiority is not respected in these cases.

In addition to the fact that the Superiority violation from condition 6 seem to be an isolated language phenomenon, there is another weak point in the hypothesis stating that Superiority operates only with animate arguments. Assuming such an idea raises the problem of explaining how certain languages (like English, above) keep following this restriction even in the case of non animate arguments. If, on the other hand, it is assumed that in some languages Superiority operates only with animate arguments, supposing it operates with all arguments in others, then a new parameter-type rule which would derive these two versions of the Superiority restriction should be postulated. In any case, an otherwise well working

⁸⁰ Only one of the conditions contained the verb *to supply* in Bulgarian which could potentially allow similar shift of the arguments. The rest of the verbs used in this subgroup are: *to declare*, *to syrup*, *to consider*, which do not allow the shift.

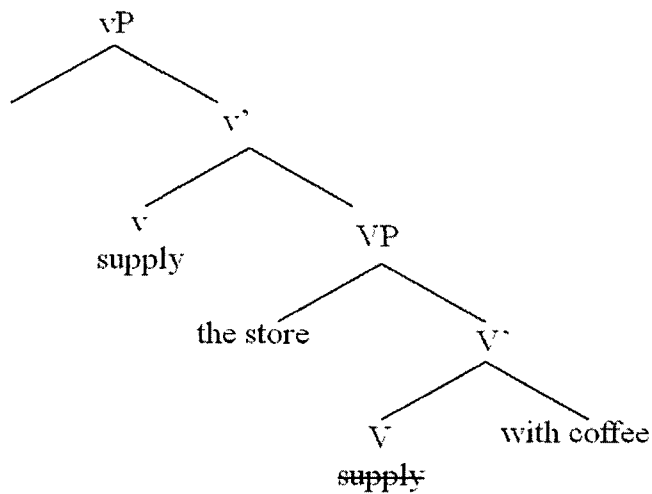
universal rule will have to be demoted to a language-specific one. The latter change does not seem to be desirable from a theoretical perspective.

A second possibility allowing us to explain the lack of significant difference between Superiority obeying and violating versions of condition 6 could be to reconsider the findings using Zubizarreta's (1998) idea that information focus is typically situated at the end of the clause. If it is assumed that the *wh*-phrases are inherently focused and that the most embedded element in the clause is also inherently focused (as it bears information focus), then one could hypothesize that the lower interrogative phrase is 'more focused' than the higher one (if such a gradation of focus is possible at all). In such a case, as Bulgarian is among the languages where focused elements need to be fronted, the otherwise syntactically lower *wh*-element is required to appear first. However, as already pointed out in the discussion of experiment 1, this hypothesis seems weak. If the relatively 'free order' of the *wh*-elements in the beginning of the clause when the two *wh*-phrases correspond to two internal inanimate arguments is taken to be an outcome of the fact that the lower *wh*-element is unconsciously perceived as information focus, then the same free order is to be expected with animate arguments (as information focus is always positioned at the end of the clause, regardless of the nature of the phrase bearing it). Nonetheless, as reflected in conditions 2 (external and internal animate arguments) and 5 (two internal animate arguments), in the combination of two animate arguments, Superiority is always respected. What is more, as pointed out in examples (15) through (18) above, this 'free order' is not observed in other languages, as it would be expected if it is attributed to the fact that the most embedded element is inherently focused.

A third option to explain the data from condition 6 would be to assume that as the two arguments originated within the same VP as arguments of the same verb⁸¹, they are considered a single unit. Consequently, their order in the beginning of the clause is irrelevant, as they are two parts of the same whole.

⁸¹ I am applying Larson's (1988) theory of DOC in English to ditransitive verbs in Bulgarian.

(19) Structure of ditransitives (following Larson, 1988):



Under this theory, the two *wh*-phrases substituting ‘the store’ and ‘with coffee’ form a constituent and this is what is fronted to the beginning of the clause⁸². Being part of the same unit, the two elements which form the constituent can be ordered randomly. Even though such a hypothesis seems plausible at first, *wh*-phrases having been argued to move to a clause-internal focal projection in Bulgarian (Izvorski, 1995), it generates the wrong predictions, as animate arguments are expected to pattern with inanimate ones, which is not the case⁸³.

A final possibility, liable to explain this puzzling piece of data and perhaps a controversial one, could be to assume that only animate, but not inanimate *wh*-phrases can raise to SpecCP. Adopting the idea that all *wh*-elements in Bulgarian raise to SpecFocP (as proposed by Izvorski, 1995), inanimate *wh*-elements will remain in this position and only animate ones could continue to SpecCP. Although there is no apparent motivation for such a dichotomy, this hypothesis could explain all the data obtained. On the one hand, given that the two inanimate *wh*-phrases remain in SpecFocP, it is no longer unexpected that their order is irrelevant. The two *wh*-elements have raised due to the fact that they are ‘greedy’ elements⁸⁴, hence their surface order is irrelevant for Superiority. On the other hand, in the combination of two animate *wh*-elements, only the one that is syntactically higher could raise to SpecCP, as

⁸² Since this constituent is in fact a VP rather than a *wh*-expression, one could argue that it is an instantiation of a focus-fronting rather than a *wh*-movement.

⁸³ Recall that in condition 5 (two internal animate arguments) there was a significant preference for the sentences obeying the Superiority restriction.

⁸⁴ Recall Bošković’s distinction between *Move* and *Attract*.

such a movement is ruled by the Superiority restriction. Consequently, sentences containing two animate *wh*-elements exhibited a clear preference for their version obeying Superiority. Finally, in the combination of an animate and an inanimate *wh*-phrase where the animate one is syntactically lower, the order of the *wh*-phrases can, but does not have to, violate the Superiority restriction, as only the animate phrase can continue to move from SpecFocP to SpecCP. In the combination of two internal arguments, violating the Superiority restriction does not pose a big problem, as the two phrases belong to the same VP domain. The two *wh*-elements have been merged close to each other and the Superiority violation is not perceived so strongly. This is expressed by the significant preference of the Superiority violating version of the sentences (condition 4, discussed below). In contrast, the combination of an external inanimate and an internal animate argument is seen a little differently. Both *wh*-elements raise to SpecFocP. However, the lower (animate) argument is internal and the higher (inanimate) one is external. Given that Superiority is a rule that is respected in Bulgarian, such a ‘distance’ cannot be easily ignored. Consequently, some speakers prefer to obey the universal Superiority restriction, whereas others favour the raising of the animate argument to SpecCP. Such a discrepancy results in a non significant difference in the ratings of the two versions of the conditions of this type. Lastly, the fact that only animate *wh*-words can raise to SpecCP can be seen as a syntactic reflection of the lexical hierarchy based on the animacy of the *wh*-elements.⁸⁵

A note regarding the motivation for *wh*-fronting to SpecCP is in order. If it is assumed that in the case of inanimate *wh*-elements, the interrogative feature on C is checked via Agree, it is unmotivated for animate *wh*-elements to raise to SpecCP in order to check their interrogative feature in a Spec-head configuration. It seems, thus, that animate *wh*-words do not undergo movement from SpecFocP to SpecCP to clause-type the sentence. An alternative motivation for this transformation could be to postulate that movement to SpecCP is simply a syntactic reflection of the animacy hierarchy and that there are two separate projections for *wh*-fronting: one – SpecFocP – where all *wh*-elements raise to check their focus feature, and another one – SpecCP – to which only the highest animate element can raise. The trigger of the subsequent movement from SpecFocP for animate *wh*-elements could be a [+animate] feature on C which needs to be checked. However, even though such a feature is able to

⁸⁵ It is not unusual in natural languages for similar elements with different hierarchical status to land in separate syntactic positions. For a similar morphology –to –syntax mapping approach of the famous PCC constraint in Romance, see Bonet (1995), among others.

account for all the data observed, such a feature might be seen as an *ad hoc* solution and needs to further be investigated. If the presence of an animate feature in C is the trigger of the movement from SpecFocP of animate *wh*-elements, it is expected that such a feature could be observed in other languages as well, or even in other syntactic environments where animate elements compete with inanimate ones. Another possible explanation for the data is to assume that animate *wh*-elements end up in a higher syntactic position than inanimate ones due to pragmatic reasons. It seems logical to me to assume that animate arguments could be interpreted as more prominent, or more discourse related. In such a case, one could easily imagine that animate *wh*-elements are rather seen as discourse-linked, or even topicalized, and as such they need to appear in front of inanimate ones. Again, an account for the data along these lines needs further investigation, as it should be contrasted to d-linked *wh*-elements and to topicalization in Bulgarian. Thus, I leave open the problem of the nature of the feature that triggers the SpecFocP to SpecCP movement as it cannot be solved only on the basis of the present studies.

With regards to condition 4 (internal inanimate and internal animate argument), similarly to experiment 1, there was a general preference for sentences violating Superiority. In contrast to experiment 1, due to the addition of the context and the simplification of the target sentences, such a difference was highly significant. Therefore the results from condition 4 clearly indicate that animacy plays a critical role in the ordering of the *wh*-elements, together with the Superiority restriction.

As in condition 3, the accusative interrogative form of the internal animate argument was substituted with *koj*, ‘who’ in half of the items. The comparison between the two groups revealed a significant preference for the sentences where the accusative pronoun was used for both Superiority obeying and violating items. The preference for the accusative condition in the Superiority violating version of the items contrasts with the data from condition 3. Perhaps a way to explain the difference between the two conditions could be to assume that speakers prefer to have ‘equal status’ of the two *wh*-elements, based on the characteristics of the higher *wh*-element. In condition 3, the higher *wh*-phrase corresponded to a non animate external argument (*kakvo*, ‘what’). However, this form is the typical one for direct objects (i.e. internal arguments) and therefore, one can envisage it as two-fold. Consequently, for the other interrogative pronoun, speakers accept the accusative form (corresponding to internal arguments) and the substitute *koj*, ‘who’ (corresponding to external arguments) equally. In the

case of condition 4, though, the higher *wh*-phrase was again *what*, but this time in its typical use as an internal inanimate argument. As a result, the phrase which would suit it best would be one standing for another internal argument, hence the accusative form *kogo*, ‘whom’ is preferred to the substitute *koj*, ‘who’. The preference for the Superiority violating word order was significant in both groups of items (those containing *kogo*, ‘whom’ and those containing *koj*, ‘who’). This data unequivocally suggests once again that in spite of the *wh*-form being used, the animate argument is required to be positioned higher than the inanimate one.

To summarize, the results obtained within group B (combination of two internal arguments) support once more the idea of animacy-based hierarchy of interrogative pronouns in Bulgarian. What is more, the hierarchy and all the seemingly unexpected and controversial data obtained could be accounted for if it is assumed that only animate, but not inanimate *wh*-phrases, can raise to SpecCP.

The results obtained through conditions 7 and 8 patterned closely with the observation that Superiority is an important constraint in Bulgarian. As mentioned earlier, I take the underlying order to be argument > adjunct, as locative adjuncts normally surface at the end of the clause in Bulgarian. Both combinations: external animate argument (condition 7) and internal animate argument (condition 8) with an adjunct (*where*) exhibited a significant preference for the version of the sentences obeying Superiority, which was expected given the results from the previous conditions. Keeping the attachment place of the adjunct in mind, the results, in particular those from condition 8, once again supported the idea that animate arguments are preferred in sentence-initial position. Having said that, the results from condition 8 differed from those obtained for the same condition in experiment 1. In the first test, participants had a non significant preference for the Superiority violating word order between the internal animate argument and the adjunct. In contrast, in experiment 2, there was a significant preference for the version of the sentences that obeys Superiority. I will take the second experiment to be the one providing a more accurate representation of the speakers’ judgments, as sentences were shorter, thus easier to interpret, a context was provided to further facilitate comprehension, and correct interpretation of the sentences was better controlled for through the addition of the production task. The non significant difference between Superiority obeying and violating sentences in condition 8 from experiment 1 could also be explained by considering the fact that items had to be graded out of context. In such circumstances, one could consider that many speakers imagined a situation where the sentence

is used as an echo-question and the circumstances of the event are very important. In such a case, placing the locative adjunct first would be appropriate and highly acceptable.

Condition 8 was also among the conditions where the *kogo*, ‘whom’ > *koj*, ‘who’ substitution was performed. Half of the items from this condition contained the accusative form substituting for the internal animate argument (*whom*) and the rest had the nonstandard (colloquial and unacceptable from a prescriptive point of view) form (*who*). Both subgroups of the condition exhibited a significant preference for the Superiority obeying word order. However, the comparison between these two variants of the condition proved to be quite interesting. The items obeying Superiority did not differ significantly, which suggests that speakers accept the accusative > nonstandard replacement more readily when there is only one *wh*-argument. In contrast, Superiority violating sentences exhibited a significant difference, the items containing the accusative interrogative pronoun rating higher than the ones containing the substitute form. In other words, speakers did not like positioning the *wh*-element *koj*, ‘who’ which typically stands for an external animate argument after the interrogative adjunct *kāde*, ‘where’. This preference could be interpreted as suggesting that perhaps the *wh*-word ‘*koj*’ (*who*) could have a special status of a certain type. Although it has already been shown in the previous substitutions that *koj*, ‘who’ does not have an exceptional rank among *wh*-elements, it could be the case that it has to precede *wh*-elements expressing adjuncts. The disparity between Superiority violating items containing the accusative or the nonstandard form of the interrogative pronoun could also be a reflection of the fact that sentences containing the substitute *koj*, ‘who’ not only violate Superiority, but also violate prescriptive rules of the grammar. Both hypotheses could be confirmed or refuted by the results of the other conditions containing a combination of an adjunct and an argument.

The new conditions in experiment 2 were 9 and 10 which paralleled conditions 7 and 8 respectively and contained an external animate argument and an adjunct ‘*kak*’ (*how*) and an internal animate argument and the same adjunct. As in condition 7 and 8, there was a significant preference for the version of the items obeying Superiority. Paralleling the results from condition 8, such a difference was also observed in both groups of items: sentences containing the accusative form of the interrogative pronoun and sentences where the nonstandard form was used. This similarity between the two types of conditions in group C supported the conclusion from the previous two groups of conditions that Superiority is a critical restriction in Bulgarian. The addition of the new conditions in group C, however,

aimed to verify whether the length of the interrogative word played a role in its positioning in the beginning of the sentence. For convenience, an example of the order of the *wh*-words in the different versions of condition 10 is given in (20) below.

(20) **Word order and numbering of the *wh*-elements in condition 10:**

	Cond. 10. _ . a-b	Mean	Cond. 10. _ . c-d	Mean
Superiority OK	Kogo (whom) > Kak (how)	3.68	Koj (who) > Kak (how)	3.79
Superiority *	Kak (how) > Kogo (whom)	2.58	Kak (how) > Koj (who)	2.89

Comparison between the different subgroups from condition 10 revealed that there was no significant difference between the Superiority obeying sentences containing the accusative interrogative form and those containing *koj*, ‘who’. Therefore, the results of this condition confirmed the observation reported in condition 8 that speakers tend to better accept the replacement of the accusative form with the nonstandard one if there is only one *wh*-element expressing an argument. In addition, the fact that the Superiority restriction was strictly obeyed even with the internal animate argument being expressed by the accusative form (*kogo*, ‘whom’) indicates that the length of the interrogative word is not an important factor for the order of the *wh*-elements. The combination of a longer *wh*-element preceding the shorter one was rated significantly higher than the opposite order.

The comparison between the variants of condition 10 violating Superiority revealed a significant preference for items containing *koj*, ‘who’. Thus, such a preference refutes the idea suggested by the results in condition 8 that the interrogative word *koj*, ‘who’ has a special status with respect to adjuncts. It also disproved the hypothesis that sentences are rated lower if they violate more than one grammatical rule. Thus, the contrast between the ratings in conditions 8 and 10 remains mysterious, as there is no apparent reason for them. One could hypothesize that there is a special metric preference (combinations of numbers of syllables) in the combination of *wh*-elements in Bulgarian. However, I will leave this question open for further research as such an investigation was not among the aims of the present experiments.

Before continuing with the data obtained through the analysis of the filler sentences, I summarize the conclusions drawn upon the results and analysis of item sentences to this point. Data from the second experiment supported to a high extent the conclusions drawn from experiment one. The results from conditions in group A (external and internal argument)

clearly showed that Superiority is a valid and working rule in Bulgarian. However, as data from condition 3 illustrated, besides this restriction, an animacy-based hierarchy is also in function. Syntactically lower animate *wh*-elements appearing before the higher inanimate *wh*-phrases were rated as good as the ones ordered following the Superiority restriction. In contrast, when the animate *wh*-element was syntactically higher, sentences always obeyed this constraint. It can be concluded, therefore, that this group of conditions clearly supports the hypothesis that there are two major interacting rules determining the order of *wh*-elements in multiple *wh*-fronting in Bulgarian. First, Superiority is followed, and second, there is an animacy-based hierarchy of *wh*-elements. Thus, once again, Rudin's (1986) original idea and Billings and Rudin's (1994) 'rule of the thumb' stating that animacy plays a role in Bulgarian was supported. However, given that participants in this study came from different regions in Bulgaria, I assume that this hierarchy is not dialectal, but rather language-specific. In addition, as data from conditions in groups A and B showed, such a hierarchy is not only applied to arguments in SpecTP, but it is valid for all arguments of the verb, external or internal. Items from condition 3, where the accusative *wh*-form was replaced with the nonstandard *koj*, 'who', further showed that the interrogative word *koj*, 'who', which normally stands for an animate subject does not have a special status among the rest of the *wh*-elements as conditions containing the substitute form were always dispreferred.

Data obtained through conditions in group B (combination of two internal arguments) further supported the idea of an animacy hierarchy. Once again, Superiority was obeyed only when the syntactically higher *wh*-element represented an animate argument. What is more, items where the syntactically lower animate *wh*-element preceded the higher inanimate *wh*-phrase were rated significantly higher than the ones that complied with the Superiority restriction. Such a preference is a clear evidence for the animacy hierarchy and unquestionably supports our working hypothesis stating that more rules than solely Superiority play a role in *wh*-word order. Similarly to what was found for group A, the substitution of an accusative *wh*-form with a nominative revealed that Pesetsky's (2000) idea according to which external animate arguments always need to be placed first cannot be supported for Bulgarian. Further, similarly to the first experiment, condition 6 (combination of two internal inanimate arguments) obtained unexpected results. It clearly showed that speakers accepted both orders: the one obeying Superiority and the one violating it. Thus, this condition (in fact, the only one where the combination of two inanimate arguments is studied) seemed at first to contradict the

idea that Superiority is a working rule in Bulgarian. However, as already discussed, although seemingly unmotivated, the results from condition 6 could be explained assuming that only animate *wh*-words can raise to SpecCP. This being the case, only combinations containing an animate argument will be affected by the Superiority restriction, and inanimate *wh*-phrases would remain in SpecFocP (following Izvorski, 1995 and Lambova, 2001, 2004 in assuming that there is a sentence-internal focus projection and that all *wh*-elements raise to it in order to check their [+focus] features).

Finally, the outcome from conditions in group C (a combination of an argument and an adjunct) was not unexpected. Since they all contained animate *wh*-elements, the word order following the Superiority restriction was preferred. Contrary to what has been observed in the combination of two arguments, these conditions showed that the *kogo*, ‘whom’ > *koj*, ‘who’ substitution is highly acceptable in Bulgarian when there is only one *wh*-phrase representing an argument. However, Superiority was strictly obeyed, which once again supported the idea that the pronoun standing for the external animate argument does not enjoy any privileges among the rest of the question words. Further, the new condition added in group C illustrated that the length of the *wh*-word is not critical for its position and that a rule of the type *Shortest First!* cannot be implemented for Bulgarian.

I conclude that the overall results from experiment 2 supported the working hypothesis from the first experiment and brought further evidence to support the claim that there are two working rules intervening in the determination of the *wh*-word order in Bulgarian: Superiority and animacy hierarchy. This hierarchy, as items from condition 6 suggest, could either be lexical or based on the rather strange fact that SpecCP is accessible only for animate *wh*-elements. Although an explanation of this type seems to fit the data perfectly, this is still a hypothesis that needs further research in future.

4.3. Fillers: results and discussion

I turn now to the results obtained through the fillers used in the second experiment. As in the first experiment, the selection of fillers was not random, but aimed to answer questions about the syntactic structure of *wh*-interrogatives in Bulgarian. In this section, I will review the fillers serving this purpose. I will leave the analysis of fillers related to the structure and characteristics of *y/n* questions for the next chapter, which is dedicated to the semantic

analysis of polar questions. The fillers were selected to be used as acceptable or unacceptable control clauses, as sentences showing whether the *wh*-cluster can be split or not, and also as examples of possible combinations between *wh*-words, focused elements and the interrogative particle *li*. Similarly to the target sentences, fillers were also preceded by a context phrase, which pursued their correct interpretation and easier understanding. A summary of the relevant data collected through the fillers is presented in Figure 5 below.

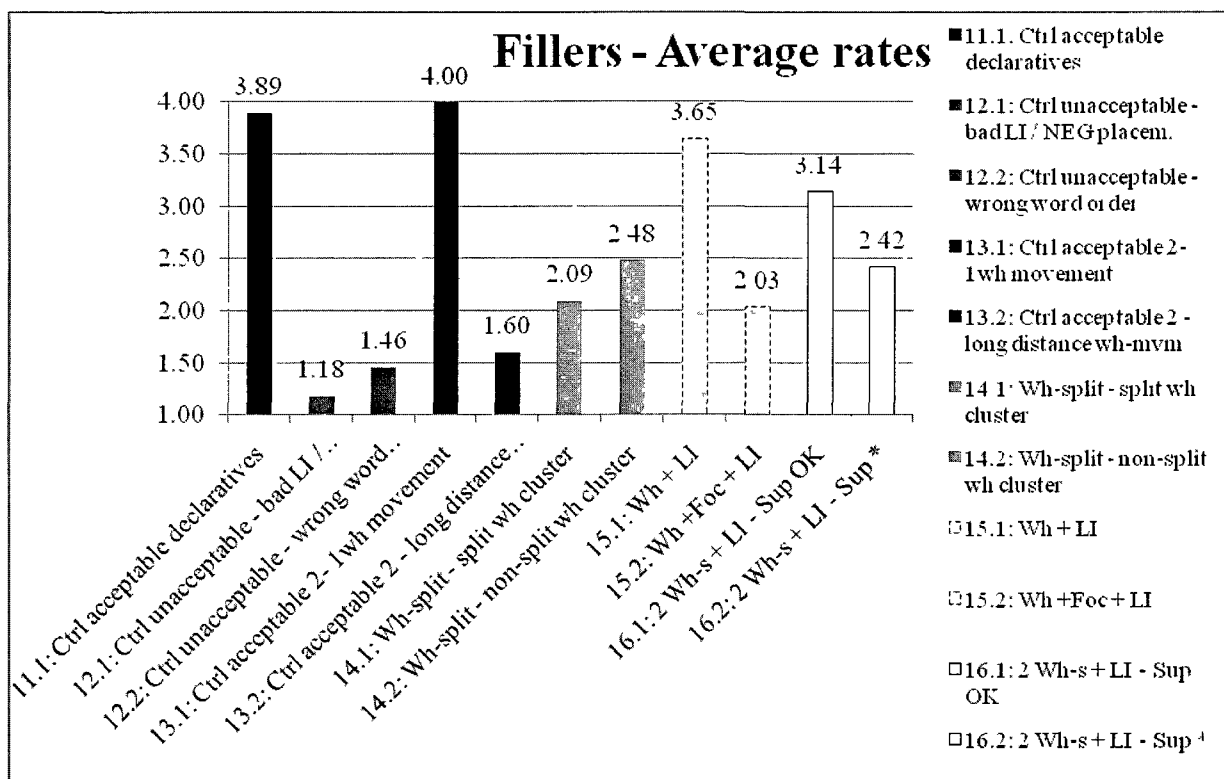


Figure 5: Overall rating of *wh*- fillers in experiment 2

As in the previous experiment, fillers were not the main object of the study, so their number was not calculated statistically. The main objective of using the types of fillers illustrated in Figure 5 was to include in the test sentences that could provide some insights into the preferred syntactic structure of interrogatives in Bulgarian. The results from the ratings of these particular sentences can be used as evidence in favour of or against the analyses proposed to this point. Detailed ratings of each type of fillers and a discussion of the data obtained are presented in the section below.

(i) **Control sentences**

The group of acceptable control clauses had two main goals. On the one hand it intended to verify the accuracy of the results, on the other hand, it aimed to be used as a base for comparison with the items that, although simplified and introduced by a context, were all rather complex for interpretation. The group consisted of several subtypes illustrated in examples (21) through (24) below.

- **Declarative clauses**

- (21) *Naposledāk zdrenieto na Ivan dosta se e vložilo i se*
Lately sight-the of Ivan a lot Refl. Aux. worsen_{p.p.sg.} and Refl.
nalaga da polzva visokodiptārni očila.
need_{3p.sg.} Sub. use_{3p.sg.} high dioptré glasses
'Lately Ivan's sight has worsened quite a lot and he needs to use high dioptré glasses.'

- **Wh-interrogatives with one wh-element**

- **Short-distance wh-movement clauses**

- (22) *Kāde gledahte poslednia film na Udi Alān?*
Where see_{2p.pl.aor.} last-the film of Woody Allen
'Where did you see the last Woody Allen film?'

- **Long-distance wh-movement clauses**

- (23) *Koj ti e izvestno, če Maria znae, če hodi na*
Who you_{Dat.2p.sg.} Aux. known that Maria knows that goes to
ski na Bansko vsjaka zima?
ski to Bansko every winter
'Who do you know that Maria knows that goes skiing in Bansko every winter?'

As already mentioned in the stimuli section of this chapter, the group of control unacceptable clauses contained two types of sentences: clauses with wrong negation or interrogative particle (*li*) placement and clauses with wrong word order. Examples are repeated below.

(24) Unacceptable control sentences

a) **Li Ivan xodi nikoga na ne počivka?*

Q Ivan goes never to Neg vacation

Intended meaning: 'Does Ivan never have a vacation?'

b) **Šte s korab li pātuvaš?*

Will with ship Q travel_{2p.sg.}

Intended meaning: 'Are you going to travel by sea?'

In the examples above the interrogative particle *li* in (24a) is misplaced, as well as the negation. The interrogative particle *li* is a clitic and it can never be used in the beginning of the clause. In addition, negation cannot stand between a preposition and its complement. In (24b) the word order is incorrect. The auxiliary is misplaced, as it has to be adjacent to the verb, and no phonological material can intervene between the two. Thus, under no circumstances could any of the sentences above be interpreted as acceptable. The ratings of the sentences from the two control groups are presented in Figure 6 below.

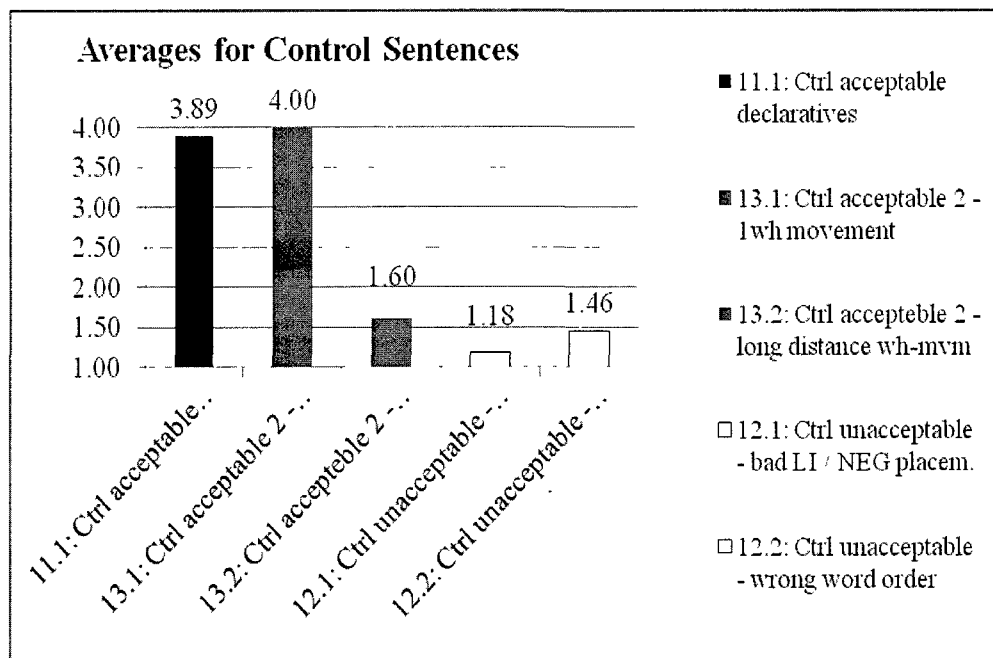


Figure 6: Mean ratings for control filler sentences

Data from the control conditions revealed a sharp contrast between short and long-distance *wh*-movement clauses. While the former had an average of 4 (no one gave them lower than the highest grade, not even by mistake), the latter had the extremely low mean of 1.60 (out of 4). Given that such a low grading was not exhibited even by items violating Superiority, this low result signals that perhaps the sentences used in this group were too complex. The only sentences which had a lower rate average were the unacceptable control fillers. However, a paired samples t-test comparing the long-distance *wh*-movement sentence ratings to the unacceptable control with bad word order revealed no significant difference between the two ($t(91) = 1.188, p = .238$).

In addition, some of the participants commented that the matrix verb used in the long-distance *wh*-movement control sentences can be used in a similar fashion, but only with one subordinate clause. Its use with two embedded clauses (as in the example (23) above) sounded ‘too heavy and difficult to interpret’ for them. What is more, in experiment 1, where no context was provided, the rating of this group of fillers was considerably higher (2.69). In addition, the number of filler sentences of this type in the first experiment was also higher. Therefore, I will exclude long-distance *wh*-movement fillers from further consideration in this section and will use as a base for comparison the remaining fillers of the group. Lastly, I ran a pair samples t-test comparing the two versions of each filler type. The test revealed that the difference between the declarative and the short-distance *wh*-movement clauses was significant ($t(88) = -2.719, p = .008$), as well as the difference between the two unacceptable control groups ($t(93) = -4.761, p < .001$). As a consequence, when comparison to control clauses is needed, I will use the ratings of the higher rated unacceptable control fillers (wrong word order) and lower rated acceptable control fillers (complex declaratives).

(ii) **Multiple *wh*-questions with added interrogative particle *li* – series 16.**

In experiment 1, fillers of this group contained two *wh*-words followed by the interrogative particle *li*. In experiment 2 a new split version of the *wh*-cluster was added. Both split and non-split variants had two alternatives: one that obeys Superiority and another that violates it. Examples are repeated below in (25):

(25) **Split and non-split multiple *wh*-questions with *li***

-Split *wh*-cluster, Superiority obeyed

- a) *Koj li kogo e sreštnal na onova parti?*
Who Q whom Aux. met_{p.p.sg.} at that party
'Who could have possibly met whom at that party?'

-Non-split *wh*-cluster, Superiority obeyed

- b) *Koj kogo li e uspjao da vidi v tazi bārkotija?*
Who who Q Aux. managed_{p.p.sg.} to see in this mess
'Who could have possibly managed to see whom in this mess?'

Results from experiment 1 showed a significant preference for the version obeying Superiority of the non-split *wh*-cluster and *li*. Given that in experiment 2 Superiority together with the animacy-based hierarchy have once again robustly shown to be critical for *wh*-ordering, similar results were expected. However, the split of the cluster with the interrogative particle was never tested. In addition, the data from experiment 1 pointed to the possibility that a lower acceptance of this combination should be expected, as one of the focused constituents remains after the interrogative particle. Such a prediction was borne out. The data is presented in Figure 7 below.

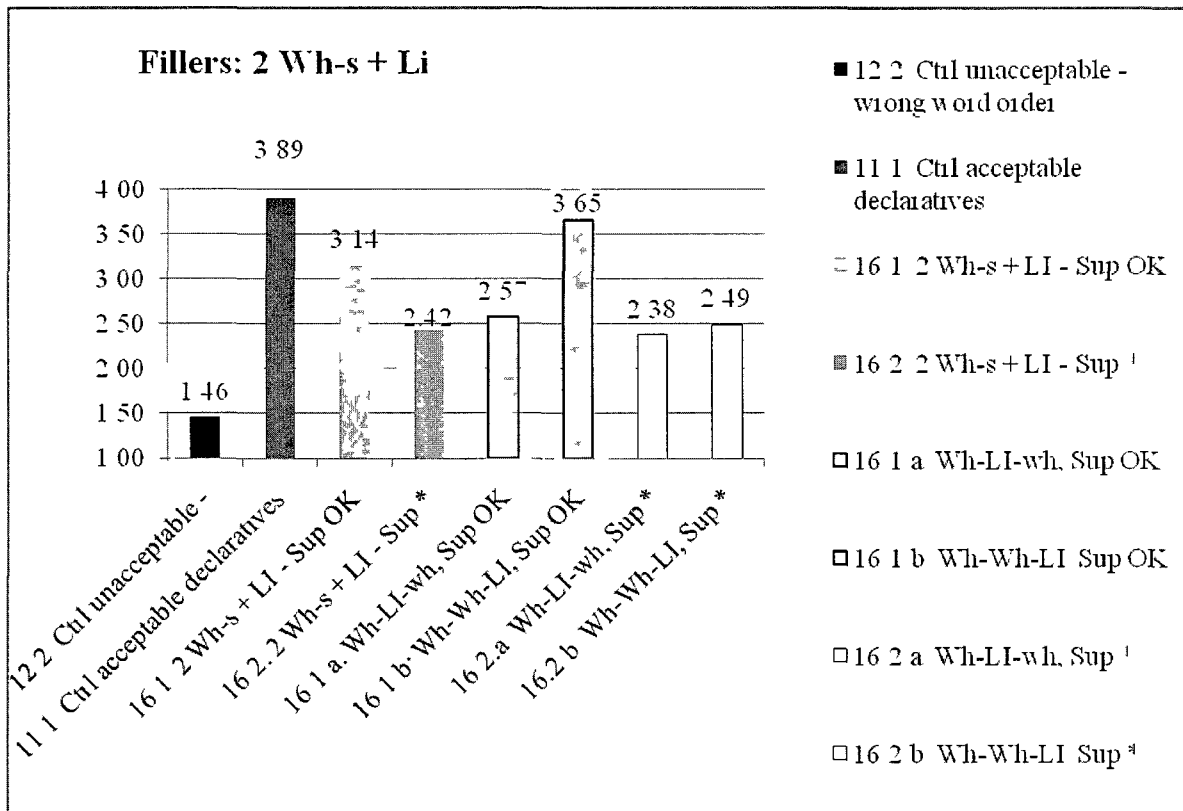


Figure 7: Mean ratings for fillers with 2 *wh*-words and the interrogative particle *li*

In order to analyze the results from this group of fillers, I conducted a series of t-tests, first comparing the overall ratings of the sentences obeying Superiority to the once that violated the restriction and then I contrasted the several subgroups of this filler type in detail. A paired samples t-test comparing the sentences that obeyed Superiority to those that violated it revealed a significant preference for the sentences that complied with the restriction ($t(88) = 5.837, p < .001$) which was expected, as the sentences contained an external *wh*-argument *who* (a syntactically higher *wh*-element that is animate and needs to be placed first).

The contrast among the clauses within the two subgroups revealed different results. Due to design, an independent samples t-test was used for this analysis. Superiority obeying sentences containing a split *wh*-cluster by *li* did not differ significantly from their Superiority violating counterparts ($t(91) = .922, p = .359$). In contrast, sentences with non-split *wh*-cluster followed by *li* paralleled the data obtained in experiment 1, with the version obeying Superiority graded significantly higher ($t(88) = -6.489, p < .001$). Further, I compared the Superiority obeying and violating sentences among the two subgroups. Superiority obeying sentences revealed that the non-split *wh*-cluster with *li* was rated significantly better than its

split counterpart ($t(89) = -5.911, p < .001$). In contrast, the difference between the Superiority violating fillers was not significant ($t(90) = .520, p = .604$).

The data from this group of fillers in experiment 2 strongly support the results and conclusions drawn from experiment 1. As in the first experiment, a strong preference for sentences obeying Superiority was observed. Given that the *wh*-phrases contained at least one animate argument, this outcome was expected, as it was also supported by the data collected from the items in the present study. In addition, data from experiment 1 could only be explained by adopting the idea that all *wh*-phrases move initially to SpecFocP and only the highest one raises to SpecCP. The prediction of such an analysis is that a split *wh*-cluster by *li* would be rated lower than its non-split counterpart. This is so, because the interrogative particle *li* adjoins only to focused elements. Given the assumption that all *wh*-elements first move to SpecFocP, *li* should be able to adjoin only at the end, after all *wh*-words. The following step is a movement from SpecFocP to SpecCP of the highest (animate) *wh*-element. However, since *li* is in the head of the focal projection and there is another *wh*-element staying in SpecFocP, *li* must follow the second *wh*-element and not the first one. This conclusion was borne out by the data in experiment 2, as Superiority obeying sentences containing a *wh*-cluster and *li* were graded significantly higher than their counterparts containing a split by *li* cluster. Also, sentences violating Superiority that contained a cluster followed by *li* did not differ significantly from any version of the split cluster with *li*. Therefore, I conclude that the data from this group of fillers brings important evidence to the analysis of Bulgarian *wh*-questions. First, they support my working hypothesis according to which apart from Superiority, there is another restriction – an animacy-based hierarchy – playing a role in the ordering of *wh*-elements at the beginning of multiple *wh*-questions. Second, this set of data supports the conclusion from experiment 1 that all *wh*-phrases first move to the specifier projection of a clause-internal projection related to focus and the highest animate one among them moves to SpecCP afterwards.

(iii) Co-occurrence of a *wh*-element, *LI* and a focused element – series 15

In experiment 2, only sentences containing a *wh*-element, *li*, and additional focused element were used as fillers⁸⁶. It consisted of four major types of sentences, exemplified in (26) below.

(26) Fillers containing a *wh*-element, *LI*, and a focused element

- a) *Zašto li Maria ne iska da doide?*
Why Q Maria Neg wants to come_{3p.sg.subj.}
'Why could Maria possibly not want to come?'
- b) *Koga trāgva Ivan za Pariž li?*
When leaves Ivan for Paris Q
'When Ivan leaves for Paris?'
- c) *Koga trāgva li Ivan za Pariž?*
When leaves Q Ivan for Paris
'When Ivan LEAVES for Paris?'
- d) *Zašto Maria li ne iska da doide?*
Why Maria Q Neg wants to come_{3p.sg.subj.}
'Why MARIA doesn't want to come?'

Experiment 1 confirmed the fact that a single *wh*-element followed by the interrogative particle *li* (26a) is highly acceptable in Bulgarian, as the rating of such a type of filler was very close to those of the sentences containing one short-distance *wh*-movement. The use of the same type of combination in experiment 2 aimed to further support these results, as a context was provided for every sentence judged. In addition, given that sentences in experiment 2 were contextually related, I expected a higher acceptability rate for sentences containing one *wh*-element and the interrogative particle *li* at the end of the clause (26b). Thus, a not so strong contrast is expected between the ratings of (26a) and (26b). In addition, I assumed in

⁸⁶ Recall that in experiment 1, fillers containing a topic phrase were used as well. No significant difference between fillers containing a sentence-initial topic and fillers containing an additional focused element was found.

experiment 1 that lower acceptability of clauses containing an additional focused element is attributable to the fact that they require a specific context and are therefore more difficult to interpret. As in experiment 2 all clauses were preceded by an introductory sentence, I added sentences containing either the verb (26c) or the subject (26d) as an additionally focused element to verify whether they are truly acceptable and if so, which is easier to process. The results of the judgments are displayed in Figure 8 below.

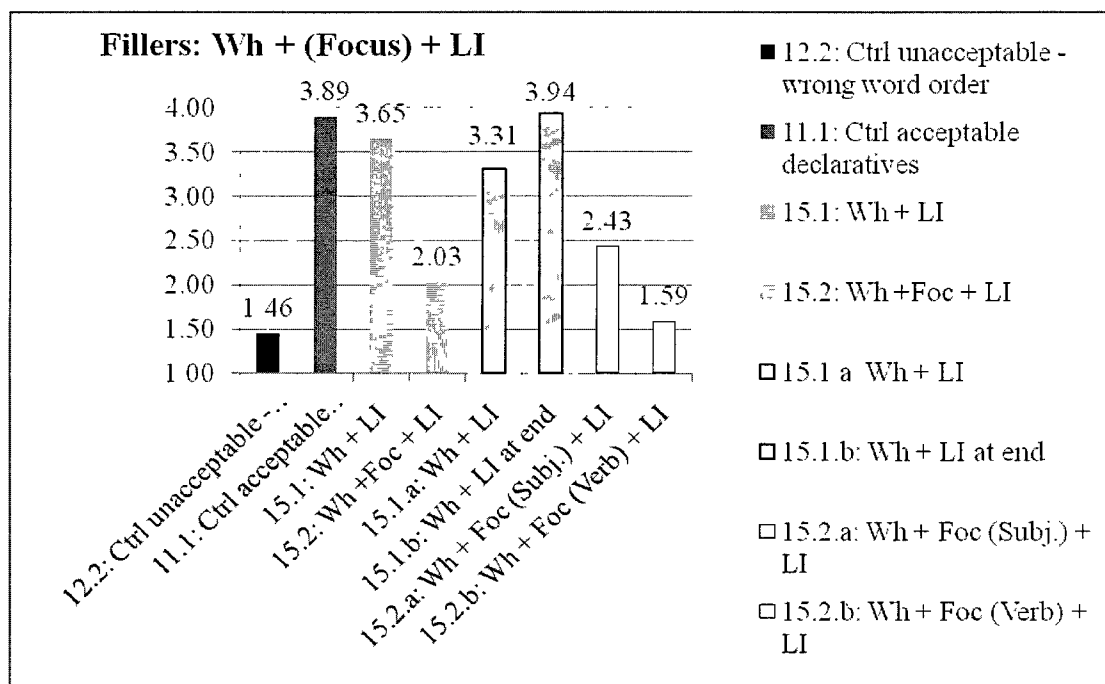


Figure 8: Mean ratings for fillers containing a *wh*-phrase, the interrogative particle *li* and a focused element

For the analysis of the data of the fillers from the series 15, I used a paired samples t-test to contrast sentences containing only a *wh*-element and *li* versus sentences containing a *wh*-element and an additional focused element followed by *li*. The statistical analysis of the data revealed that the difference in rating was highly significant ($t(86) = 13.957, p < .001$), with preference for the combination without an additional focused element.

I further compared these fillers in detail. Due to design, I used an independent samples t-test. The results showed that sentences containing a *wh*-question with the interrogative particle *li* at the very end of the clause were rated significantly higher than the ones containing a *wh*-element directly followed by *li* ($t(86) = -5.398, p < .001$). The comparison within the

fillers containing a *wh*-phrase followed by a focused element followed by *li* revealed that sentences where the focused element was the subject were graded significantly higher than the ones where the focused element was the verb ($t(90) = -4.376, p < .001$).

These findings were not unexpected. It is completely reasonable for sentences containing only a *wh*-element and the interrogative particle *li* to be rated higher than the ones containing an additional focused element as well. The questions are easier to interpret if the interrogative particle *li* adjoins to the only focused element (a *wh*-phrase or a whole interrogative clause in this case). In addition, the very high ratings of the sentences containing an interrogative clause and *li* at the end suggest that the whole clause can easily be interpreted as focused. In contrast, the addition of another focused element following the *wh*-phrase complicates the interpretation, as there are two focused elements: the inherently focused *wh*-phrase and the element to which the interrogative particle is adjoined. Furthermore, as already mentioned, it was expected that the addition of a contextual phrase would result in a higher grading for sentences containing a *wh*-clause and *li* at the end. This clearly indicates that the specifier position of the Focus Phrase can host larger phrases, even whole clauses, as it is in this case.

Lastly, there was a sharp contrast between sentences containing an additionally focused subject or verb. This is problematic for traditional analysis of *wh*-interrogatives, as it predicts the equal acceptability of both types of sentences. In both cases the *wh*-element is situated in SpecCP, the focused NP is in SpecFocP (adopting the idea that there is a clause-internal focal projection), the verb is in C^0 and the interrogative particle *li* is in Focus head. Thus both combinations should be equally acceptable. The data is problematic as well for the approach based on the idea that the *wh*-element raises to SpecCP and the C projection is headed by the interrogative particle *li*. In such a case the sentence containing the focused verb would be expected to be rated higher, as the verb adjoins to C^0 , whereas the focused subject competes for the SpecCP position with the interrogative pronoun. However, the results reveal the opposite preference. The difference, thus, could only be explained if it is assumed, once again, that all *wh*-elements, together with all focused elements, move to the focus phrase to check their focus features. If this is so, in both cases a *wh*-element and a subject or a verb have moved to this position. The subject and the *wh*-elements raise to the specifier of Focus Phrase. The verb, in turn, undergoes a head movement from V to T and further from T to Focus. In the

next step, the *wh*-element undergoes a movement to SpecCP⁸⁷, and the focused subject NP remains in the SpecFocP position. Thus, although relying heavily on the context, a reading where the subject followed by an interrogative particle is the additionally focused element in a constituent question is possible. Contrary to the subject NP, the focused verb remains in Focus head⁸⁸. Under traditional analysis, the verb must further undergo a T to C movement. If this was the case, there should be no problem for interpreting the questions containing a *wh*-verb-*li* sequence. An explanation for the big difference between the two variants of constituent questions containing an additional focused element can be found using Izvorski's analysis for *wh*-questions. According to her theory, subjects raise out of the VP only if focused. Consequently, there is only one possible interpretation if the subject is preverbal, and it is that of a focused element. Hence, the reading for the case when both subject and *wh*-element precede the interrogative particle is one where both elements are focused, and that is the only available interpretation for (26d). This is not necessarily the case for (26c), however. Typically, polar questions are formed by adjoining the interrogative particle *li* to the verb⁸⁹. The verb in T⁰ (in a syntactic derivation where the subject remains VP internal unless focused) is the closest and easiest host for the enclitic *li*. Hence, in the absence of a contrastively focused element, the verb is the one that undergoes T⁰ - to - F⁰ head movement. As this combination (verb + *li*) can have a neutral reading⁹⁰, the sequence *wh*-element - V - *li* becomes more difficult to interpret. On the one hand the combination V-*li* could be seen as neutral. On the other hand, the presence of the *wh*-element forces the interpretation of the *wh*-element and the V as both being focused. This at first contradictory combination then results in lower grades for sentences of this type.

In summary, data from fillers containing one *wh*-element and the interrogative particle *li* were consistent with the findings to this point and further support the idea that *wh*-elements are inherently focused and as such, they need to first raise to SpecFocP. In addition, data from this series of sentences bring evidence to the effect that SpecFocP can host larger phrases, in

⁸⁷ If it is assumed that only *wh*-phrases that stand for animate arguments can raise to SpecCP, it is also possible to imagine that the *wh*-element stays in SpecFocP. However, there is no evidence in experiment 2 that adjunct *wh*-phrases cannot raise to SpecCP. Only *wh*-elements standing for inanimate arguments have exhibited this unusual behaviour.

⁸⁸ Recall that I adopt Izvorski's (1995) analysis where the verb does not raise from T-to-C in constituent questions and the subject remains within the VP unless focused.

⁸⁹ In fact this has led to the (incorrect in my view) conclusion that *li* is situated in C⁰. Given the frequency of this type of questions, they are often considered neutral, which I show in the next chapter not to be so necessarily.

⁹⁰ Polar questions formed by adding *li* to the verb can have either neutral or focused readings. I will return to this problem in the next chapter, where *y/n* questions in Bulgarian are investigated.

other words, there is no limit on the number of words that can precede the interrogative particle. Finally, the results obtained in this group could only be explained by Izvorski's (1995) analysis of constituent questions in that verbs do not have to raise from T-to-C and that subjects move out of the VP only when focused.

(iv) Split vs. non-split *wh*-cluster – series 14

The last group of fillers that were used to provide evidence on the syntactic structure of *wh*-interrogatives in Bulgarian consisted of sentences containing a *wh*-cluster of two or three words split or followed by an adverbial or parenthetical. Examples are repeated in (27) below for convenience:

(27) **Split vs. non-split *wh*-cluster**

a) *Koj dano kakvo da e nameril?*
 Who hopefully what to Aux. find_{p.p.sg.}

‘Who has hopefully found what?’

b) *Koj kakvo dano da e nameril?*
 Who what hopefully to Aux. find_{p.p.sg.}

c) *Koj za štastie kakvo na kogo e kupil?*
 Who for happiness what to whom Aux. buy_{p.p.sg.}

‘Who has happily bought what for whom?’

d. *Koj kakvo na kogo za štastie e kupil?*
 Who what to whom for happiness Aux. buy_{p.p.sg.}

As in experiment 1, the addition of this type of filler was prompted by Lambova's (2001, 2004) claim that *wh*-words do not necessarily form a cluster in Bulgarian. The data obtained in the first experiment revealed a significant preference for the non-split cluster. However, as already pointed out, multiple *wh*-questions are hard to interpret, especially when out of context. In addition, some sentences contained three *wh*-elements, which made the structure

even heavier. Thus, the same type of fillers were used in experiment 2, but this time introduced by a short context. The results differed drastically from those in experiment 1 and supported Lambova's claim. The data is presented in the figure 9 below.

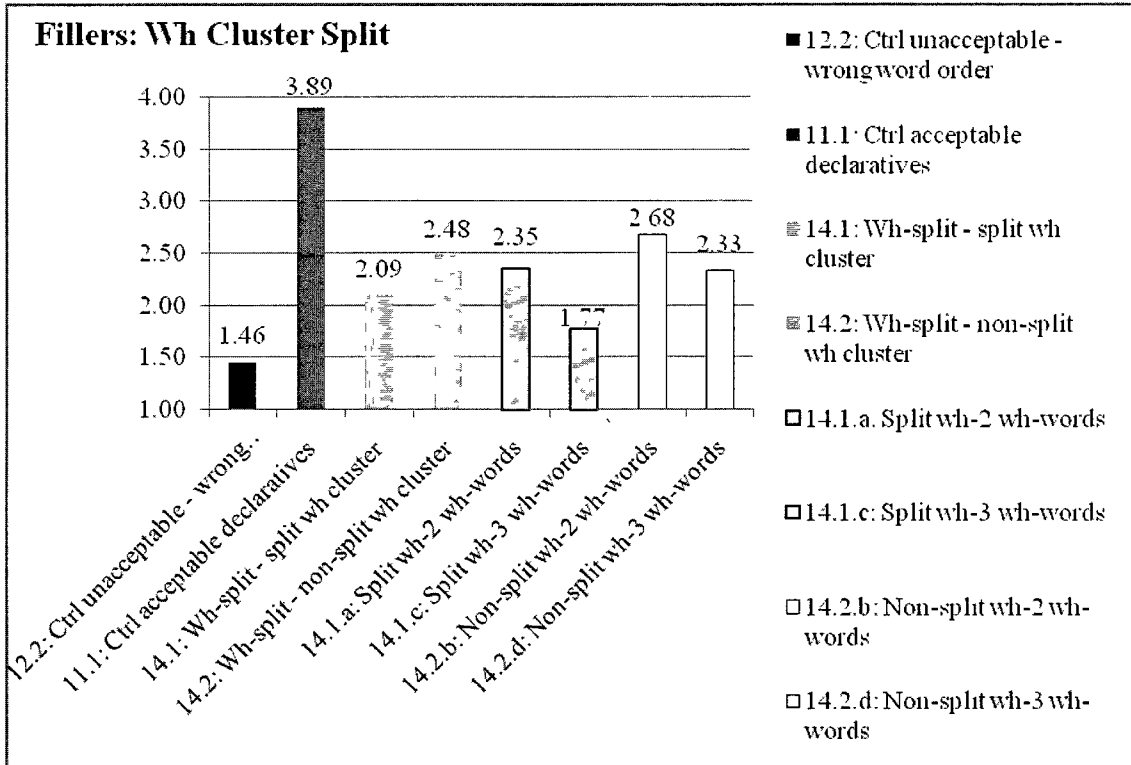


Figure 9: Mean ratings for fillers containing a split/non-split *wh*-cluster with 2 or 3 *wh*-elements

As Figure 9 illustrates, there is an overall preference for sentences where the *wh*-cluster is not split. For the analysis of the data, I used a paired samples t-test comparing first sentences containing a split *wh*-cluster with those where the adverbial/parenthetical followed the *wh*-words. The test revealed that the preference for the non-split version of the sentences was significant ($t(94) = -2.633, p = .010$).

I further contrasted the acceptance of the split cluster in sentences with two *wh*-elements and in sentences with three *wh*-elements. Sentences with three *wh*-elements were rated significantly higher when the cluster was not split ($t(86) = -3.104, p = .003$). However, the comparison between sentences containing only 2 *wh*-elements yielded different results.

The preference for the version of the sentences containing a non-split cluster to the one where the *wh*-cluster was split was not significant ($t(91) = -1.621, p = .108$).

The contrast between the results in the two experiments can be explained by the fact that only the second experiment provided a contextual sentence for all sentences. The combination of several *wh*-elements is hard enough to process. This is additionally hampered by the intervening lexical material which clearly requires more details. Consequently, sentences containing the non-split *wh*-cluster were rated better in experiment 1, as they were easier to be interpreted. Recall, however, that even while being rated lower, sentences with split *wh*-cluster were never graded as bad as unacceptable control clauses. The same was true in experiment 2. A paired samples t-test comparing the ratings of control unacceptable sentences (12.2) and fillers with a split *wh*-cluster containing three *wh*-words (14.1.c) revealed that the filler was rated significantly higher than the control clause ($t(86) = -2.806, p = .006$). Thus, even though sentences with three *wh*-elements and a split *wh*-cluster were extremely complex and hard to interpret, their ratings were never as low as those of unacceptable control clauses⁹¹. Within the same line of reasoning the contrast in experiment 2 between sentences containing 2 and 3 *wh*-elements can be explained. The higher the number of *wh*-words, the more difficult the interpretation becomes. Even though a context was provided, a higher number of *wh*-elements apparently needs more detailed circumstances. As in experiment 1, this was further complicated by the intervening lexical material. Consequently, the ratings of these sentences were considerably lower. Sentences containing a cluster consisting of 2 *wh*-words, however, were not so challenging for interpretation. One could even argue that when there are two *wh*-elements, they can be more easily interpreted as one meaningful unit and a non-split *wh*-cluster version will be rated significantly better. However, this was not the case. I interpret these results to be strongly supporting of Lambova's (2001, 2004) theory that states that *wh*-elements are hosted by different heads. I further take this to support the conclusion according to which the highest *wh*-element is situated in SpecCP, whereas the lower ones are in SpecFocP.

⁹¹ What is more, recall that the control acceptable clause with long-distance *wh*-movement was rated 1.60, because it contained two embedded clauses and was too complex to process. However, the syntactic structure of the clause is sound. Thus, complexity of the sentence seems to play a critical role in their acceptability ratings. Still, a split *wh*-cluster with three *wh*-words was rated higher (1.77) than the long-distance *wh*-movement control sentence (1.60).

5. General Discussion

The two experiments described in chapters 3 and 4 aimed to study the preferred order of *wh*-elements in multiple *wh*-interrogatives in Bulgarian and to shed light on the syntactic structure of interrogatives in this language. Previous studies on the topic have pointed to several factors as being influential in *wh*-ordering. Proposals include a Superiority restriction (Rudin (1986, 1988), Billings and Rudin (1994), Izvorski (1995), Richards (1998, 2001), Bošković (1998, 2002), Pesetsky (2000), Lambova (2001, 2004), among others); Animacy as a dialectal variation characteristic (Rudin, 1986); Animacy in combination with Superiority and discourse prominence (Billings and Rudin, 1994); Agentivity (Pesetsky, 2000); a Principle of Minimal Compliance (Richards, 1998, 2001); and the nature of the *wh*-movement: *Agree* vs. *Move* (Bošković, 1998, 2002a) to mention some of the most influential ones. However, none of the previous studies reported systematic native speakers' judgments and data often seem to be contradictory. In order to examine the validity of the above-mentioned approaches, I designed a sentence judgment task and used conditions containing multiple *wh*-interrogatives for different types of arguments (external and internal), animate and inanimate NPs, and compared sentences that obeyed the Superiority restriction to those violating it. In experiment 1, speakers were asked to rate sentences out of context, whereas the second study introduced a short context sentence before every judged item. I also examined whether the presence of an adjunct *wh*-phrase would influence the ordering. In addition, the second experiment explored whether the length of the *wh*-word has an impact on their ordering and also whether the interrogative pronoun *koj*, 'who' has a special status among the other *wh*-elements. The results of the two tests were very coherent. As expected, the addition of the context resulted in higher overall ratings of all conditions. However, there was a coherent pattern in this difference for the largest part of the items evaluated: higher rated conditions improved more than lower rated conditions. Thus, the difference between two conditions within the same group increased and often became more significant. The overall differences of results are presented in Figures 10 through 12⁹²:

⁹² The ratings presented in all figures represent the overall ratings for identical conditions from experiment 1 and experiment 2. Thus, only results from conditions containing the accusative form of the internal animate argument from experiment 2 were included, as the accusative > nominative substitution was not studied in experiment 1.

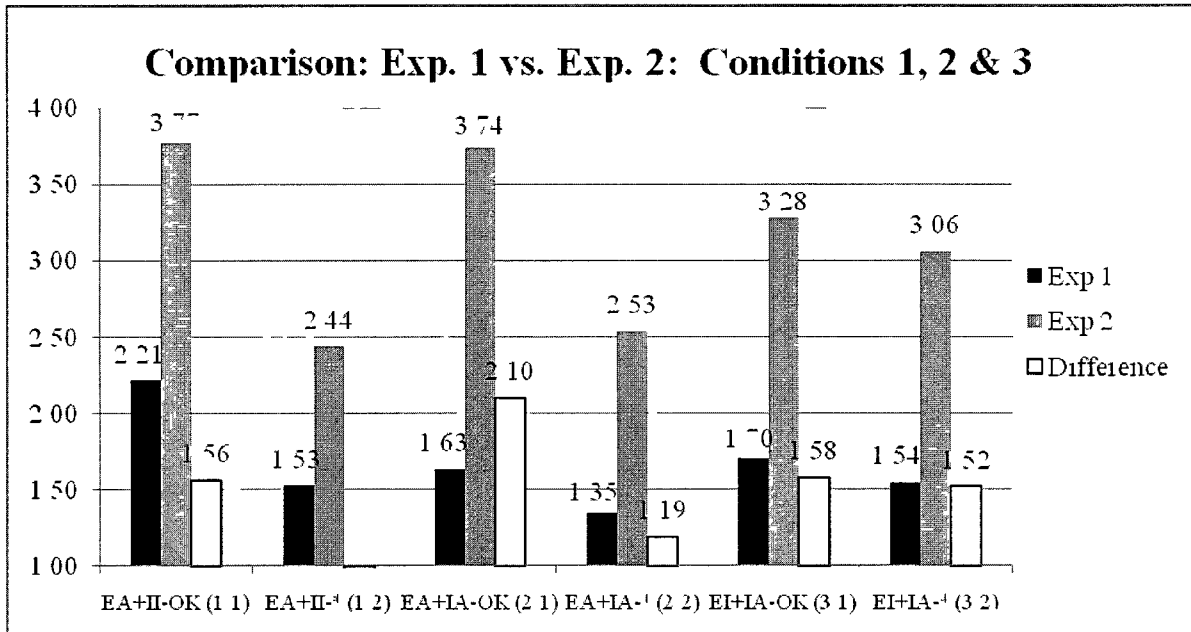


Figure 10: Mean rates and differences for conditions in **group A** (external and internal argument): Cond. 1 (EA + II), cond. 2 (EA + IA) and cond. 3 (EI +IA) in both experiments

As can be seen from Figure 10, there was an overall higher rating of conditions in experiment 2 as compared to those in experiment 1. The precise difference is 1.48 for conditions from group A. However, the same pattern of preference was preserved and the higher the rate of a condition in experiment 1, the higher it was in experiment 2. Therefore, I conclude that the results of the two experiments are consistent with each other, and that the results from experiment 2 support the findings and conclusions drawn from the data collected in experiment 1.

The same pattern of grading was observed in the second group of conditions (group B, containing two internal arguments). Results and differences are illustrated in Figure 11 below.

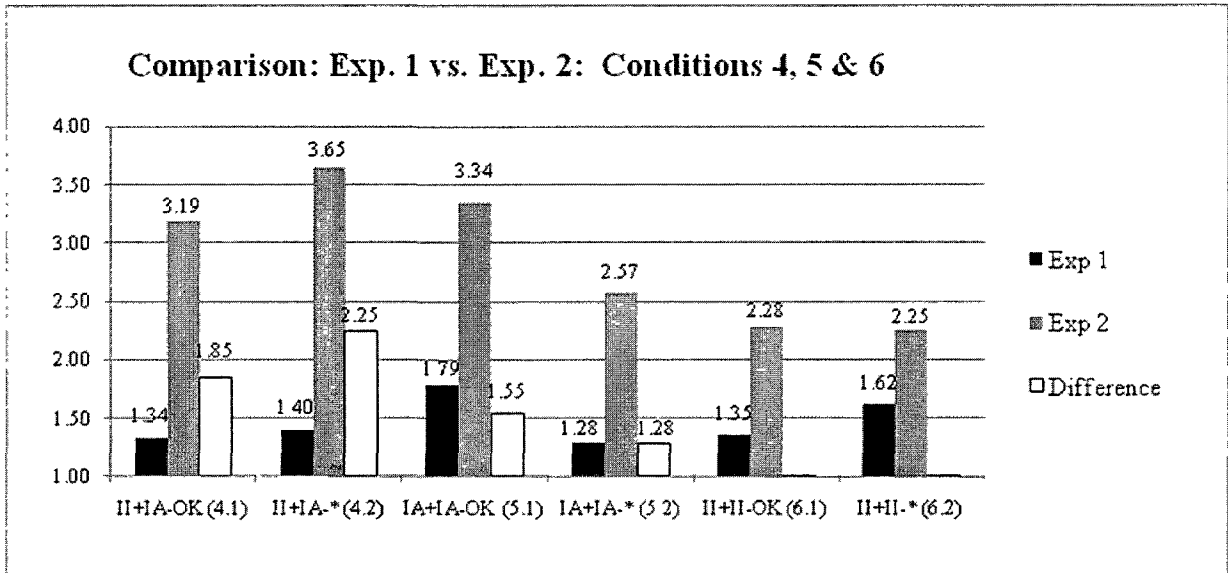


Figure 11: Mean rates and differences for conditions in **group B** (Two internal arguments): Cond. 4 (II + IA), cond. 5 (IA + IA) and cond. 6 (II +II) in both experiments

Similarly to conditions in group A, the ratings of the items from group B raised an average of 1.42 points. Again, the preference pattern from experiment 1 was preserved, with the exception of condition 6, where the two versions of the sentences were rated extremely close. As discussed earlier, I take the data from experiment 2 to be more accurate than that in experiment 1, as the addition of a context sentence, the example of ranking in the instructions, the repetition of the grading scales on each page of the test, and the simplification of the items led to lower errors and eased interpretation of all sentences. Consequently, I take data from condition 6 in experiment 2 to be more meaningful than the ones obtained in experiment 1. Nonetheless, even with the change in the preference in experiment 2 between Superiority obeying and violating sentences, condition 6 did not match completely the results obtained in the previous groups of conditions. In that sense, results from condition 6 in the second study were consistent with experiment 1.

Similarly to the shift in condition 6, there was a slight discrepancy in the results of condition 8 (group C: argument + adjunct) between experiments 1 and 2. For the same reasons as the ones outlined for condition 6 above, I take the results from experiment 2 to be more accurate than the one from the first experiment. The data is shown in Figure 12 below.

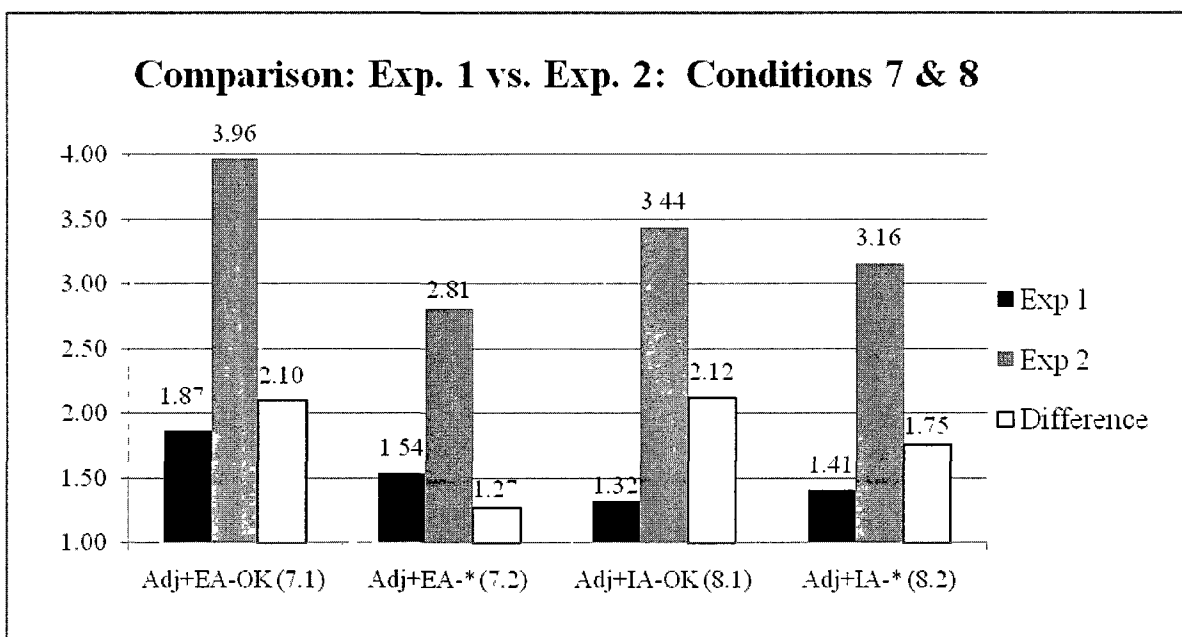


Figure 12: Mean rates and differences for conditions in **group C** (Argument + adjunct):
Cond. 7 (EA + Adjunct) and cond. 8 (IA + Adjunct) in both experiments

The average increase in the grading for conditions 7 and 8 in experiment 2 was 1.81 points, which was comparable to that in groups A (external and internal argument) and B (two internal arguments). As in condition 6, there was a shift of the results in the opposite direction for condition 8. However, as I already pointed out, this change in the overall preference does not contradict the conclusions drawn upon the results obtained from experiment 1. I further take this shift to be meaningful, in the sense that it exemplifies more accurate judgments of these items.

In both experiments, an overall preference for sentences obeying the Superiority restriction was observed. The only case where Superiority violating items were graded significantly higher than Superiority obeying ones was the combination of two internal arguments where the animate one was syntactically lower than the inanimate one. This overall higher ranking for Superiority obeying conditions supports the traditional view in Generative Grammar that syntactically higher *wh*-elements must be positioned before the lower ones in multiple *wh*-interrogatives. It also complies with the idea that paths resulting from *wh*-movement cannot be nested. Finally, such a preference for items obeying Superiority

resembles the situation in the majority of the world's languages⁹³ that exhibit *wh*-fronting. However, as has already been pointed out, conditions where the lower *wh*-element was animate and the higher was inanimate exhibited an overall different pattern from the rest of the items. Ratings of the two versions of these sentences were either too similar to obtain significant results (condition 3), or exhibited a significant preference for the version of the items violating Superiority (condition 4). The judgments obtained by means of these two types of conditions were critical for the present study. It confirmed that Superiority is not the only crucial restriction applying to *wh*-ordering in Bulgarian. The judgments obtained through conditions 3 and 4 in the current study convincingly support the initial hypothesis that animacy plays a major role in the positioning of the *wh*-elements. A general preference for animate *wh*-elements to appear before non animate ones was observed. Therefore, the results not only supported Rudin's (1986) claim that in some dialects of Bulgarian animate *wh*-phrases are allowed to precede higher non animate *wh*-elements, but also revealed that this is a general property (rather than a property observed only in external arguments as suggested by Billings and Rudin, 1994). The data also shed some light on the fact that the distance between the *wh*-elements in question is important as well. It showed that the bigger the distance between the two *wh*-elements, the more costly the violation of Superiority will be. This was demonstrated by the contrast between conditions 3 (EI+IA) and 4 (II+IA). What this indicates is that it cannot be directly concluded that there is a hierarchy of *wh*-arguments in Bulgarian and that animate *wh*-elements will always precede inanimate ones. If this were the case, the preference for the version of the sentences that violates Superiority would have been significant not only in the case of two internal arguments (cond. 4: II+IA), but also for the combination of external and internal arguments (cond. 3: EI+IA). The results revealed that the situation is not as simple it may seem. They showed that there is a general tendency for animate arguments to precede non animate ones, but just how acceptable the violation of the Superiority restriction will be depends on the syntactic position of these arguments. Therefore, I conclude that the results of the two experiments revealed that ordering of *wh*-elements in the beginning of multiple *wh*-interrogatives in Bulgarian is a complicated problem. Such an

⁹³ Bošković (1998) points out that Superiority is not a relevant restriction in Serbo-Croatian (SC) as *wh*-elements in this language move to a lower [perhaps Focus] phrase to satisfy their greediness. SC *wh*-fronting in his view is an instance of a *Move* operation (rather than *Attract*) and given that elements are moved to satisfy their own need and not that of the probe, order (Superiority restriction) is not relevant. Bošković further claims that simple *wh*-questions in SC are spelled out before C enters the derivation, similarly to French *wh*-in situ interrogatives. For details and discussion on SC *wh*-fronting, see Bošković (1998).

ordering depends on the interaction of two major principles. On the one hand, there is an animacy-based hierarchy between *wh*-elements that requires *wh*-elements representing animate arguments to precede those standing for non animate ones). On the other hand, the Superiority restriction plays a crucial role, requiring syntactically higher *wh*-elements to precede syntactically lower ones. Thus, there is no unique condition for *wh*-ordering in Bulgarian, but two interacting ones. This new emerging system predicts that ordering of *wh*-phrases in this language is a continuum rather than a clear-cut situation. The generalization is that if the higher *wh*-element is animate, the order of *wh*-elements will comply strictly with the Superiority restriction. As was made clear in the second experiment, this was the case even when one of the two *wh*-phrases was an adjunct. The ordering of the *wh*-phrases in this case will also comply with the animacy-hierarchy of interrogative pronouns⁹⁴. Thus, if the higher *wh*-element is an animate one, the Superiority restriction and the animacy hierarchy require the same ordering of *wh*-elements. Consequently, only one ordering is considered truly acceptable. In the case of a lower animate *wh*-element and a higher non animate one, the order of the *wh*-elements depends on the basic syntactic position of the *wh*-pronouns. If the higher *wh*-element is an inanimate external argument and the lower *wh*-element is an internal animate argument, then both orderings of the *wh*-elements are equally acceptable: the one obeying and the one violating the Superiority restriction. This is so because there is a conflict between the preferred outcomes of the two interacting restrictions: Superiority and the animacy-based hierarchy. Superiority clearly requires the external argument to precede the internal one, whereas the animacy hierarchy demands the lower animate element to be placed first. As a result, given that both restrictions are applied in *wh*-movement, both orders are allowed: Higher > Lower and Animate > Non animate⁹⁵. In contrast, if the higher non animate element and the lower animate element are both internal arguments, the ordering of the *wh*-elements is straightforward: the animate *wh*-phrase must precede the inanimate one. Again, as was the case for the other combinations of *wh*-elements, both restrictions are at play. However, given that the *wh*-elements have originated close together, within the same (VP) phrase, their order

⁹⁴ This system, therefore, predicts that in the combination of an inanimate argument and an adjunct, the preferred *wh*-order must not necessarily be the one following Superiority. This is related to the fact that adjuncts can be attached at different levels and can precede or follow arguments. Given that the argument is not animate, it will not have to appear first in the *wh*-cluster/raise to SpecCP.

⁹⁵ If only one *wh*-order were accepted, this would mean that one of the rules is not as strong as the other, i.e. there would be a hierarchy of rules. The fact that both orders are available indicates that both restrictions are equally strong and acting at the same time.

is more easily shifted due to the shorter distance between them. This suggests the possibility that Superiority is not such a strong constraint when the two elements originated within the same phrase. In such a case, the Superiority restriction is more easily overridden. Consequently, the animate > non animate *wh*-order is strongly preferred.

To conclude, overall results of both experiments strongly supported the idea that there are two interacting operational constraints on *wh*-ordering in Bulgarian: the Superiority restriction and an animacy-based hierarchy.

One condition type, however, did not completely fit the overall outcome in either experiment. In experiment 1, condition 6 (two internal inanimate arguments) exhibited a significant preference for the Superiority violating version of the sentences. I partially attributed such rates to a possible misunderstanding of the items in questions. In experiment 2, however, the same condition revealed only a non significant preference for the version obeying Superiority of the sentences. Although the results were different from those obtained in experiment 1, they still disagreed with the data obtained from the rest of the items. As in experiment 1, the preferred order of the *wh*-elements was not as expected. This time, however, there was no room for misunderstanding the items. The Superiority-animacy combination predicts that if there is no animate *wh*-element, the preferred order must be the one obeying Superiority. Nonetheless, this order was not considered as being significantly better.

As pointed out earlier, several possible explanations could be put forward in order to give an account for these findings. First, one could suppose that this unexpected equal rating of Superiority obeying and violating sentences results from the fact that the second lower *wh*-element is the most embedded one in the clause. This is typically the position of focus (Zubizarreta, 1998). Further, it could be deduced that participants unconsciously perceived the lower *wh*-phrase as inherently focused or more discourse-prominent. Consequently, given that the lower *wh*-phrase is interpreted as more salient than the higher one and neither of them is animate, the order of the *wh*-phrases reflects the necessity of placing the more prominent element first, even if such an ordering violates a fundamental rule in syntax, such as the Superiority restriction. There are two major problems in adopting an analysis along these lines. On the one hand, a similar phenomenon has not been discussed for other languages (English, Spanish, and French, to mention some of the most studied ones) whereas Zubizarreta views her proposal as universal. The combination of two internal inanimate *wh*-arguments always obeys Superiority in those languages. Thus, this sudden contrast with Bulgarian is still

unexpected. On the other hand, if one assumes that the lower *wh*-element can precede the higher one because of being inherently focused, the same outcome in conditions where the *wh*-elements represented two internal animate arguments should be expected. The second *wh*-element in these items was also the most embedded element in the clause. Thus, it should have also been perceived as inherently focused and consequently put first. However, this was not the case. Condition 5, where such a combination was studied, revealed a significant preference for the version of the sentences that obeys Superiority. Thus, an explanation based on the fact that the lower *wh*-element can surface first because of its inherently focused nature cannot satisfactorily account for the data.

A second possible explanation for the results from condition 6 could be hypothesized on the basis of the fact that the lower *wh*-phrase was always a prepositional one (PP). This kind of phrase can easily be mistaken for a discourse-linked (d-linked) element. As Kayne (1983) and Pesetsky (1987) point out, English d-linked *which* phrases appear unrestricted in their movement. Thus, one could suppose that the equal ratings of Superiority obeying and violating versions of sentences from condition 6 were an outcome of the fact that the lower *wh*-element was interpreted as d-linked. This analysis faces the same problem as the previous one. If it is true that participants interpreted prepositional *wh*-phrases as d-linked, then the same pattern should be observed in results in condition 5 (two internal animate arguments), where the second *wh*-element was always prepositional as well. However, this was not the case; therefore, the d-linked analysis of the phenomenon reported in condition 6 does not seem plausible either.

There are still two remaining possible ways to explain the data from condition 6. One option is to assume that Superiority is not active among elements originated within the same phrase⁹⁶. This means that Superiority will be irrelevant for the order of *wh*-elements which are both internal arguments. The preference for the Superiority violating version of the sentences in condition 4 (II+IA) will thus be easily accounted for within this theory. Given that the order between the two *wh*-elements is unrestricted by Superiority, the only remaining active constraint will be the animacy-based hierarchy. Consequently, the Superiority violating word order is significantly better. However, the significant preference for the version obeying Superiority of the sentences in condition 5 (IA+IA) might be problematic for such an account,

⁹⁶ Recall that Billings and Rudin (1994) propose that Superiority is not relevant for two internal arguments, as neither of them raises to SpecTP.

as Superiority should be irrelevant in this case as well. Still, one could argue that even though Superiority is not acting within the elements from the same phrase, the preferred order is the one defined by this constraint unless other restrictions require a different phrase ordering. Thus, given that both *wh*-phrases are animate, the animacy-based restriction cannot define the order of the two *wh*-elements. As a consequence, the default, Superiority obeying order is preferred. Note that this ‘Superiority by default’ rule should be valid only for animate *wh*-elements, otherwise condition 6 remains problematic. An explanation along these lines seems credible and does not contradict the rest of the findings from the two experiments. Yet, the disadvantage of this account would be the demotion of a universal syntactic restriction such as Superiority. In addition, to the best of my knowledge, there are no other languages where such a phenomenon has been reported.

One last way to account for the results from condition 6 would be to assume that only animate *wh*-elements are allowed to raise to SpecCP. This could be the result of the language specific animacy-based hierarchy, or a general property of C⁰ in Bulgarian to host only animate phrases⁹⁷. Such an assumption is not uncontroversial, and needs further research. Still, it nicely accommodates the animacy-based hierarchy observed throughout both experiments and it also provides an explanation to all the data obtained in this study. On the one hand, it combines Superiority and animacy as two interacting constraints on *wh*-ordering, and also explains how exactly the animacy hierarchy operates. On the other hand, it makes it clear that the Superiority constraint does not affect the combination of two inanimate arguments. Moreover, an account along these lines implies that there is a clause-internal focus projection to which *wh*-elements are moved before they raise to SpecCP. The hypothesis that there is such a projection and the movement of *wh*-elements to it has already been supported by the data obtained through the fillers in both experiments. Thus, although slightly controversial, it seems that an account assuming that only animate *wh*-elements can raise to SpecCP in Bulgarian is a viable hypothesis, as it can easily explain all the data and is also compatible with the syntactic structure supported by the results obtained through the fillers in both experiments.

⁹⁷ As pointed out earlier in the discussion, the feature triggering the SpecFocP to SpecCP movement is unclear. Such a movement can be attributed to either a [+animate] feature on C or to a pragmatic effect whose outcome is the interpretation of animate *wh*-words as d-linked or discourse topics. Regardless of its nature, the feature triggering the SpecFocP to SpecCP raising must be hosted by C and the movement should be of the *Attract* type in Bošković’s terms, as it obeys Superiority. In contrast, focus fronting of all *wh*-elements to SpecFocP is of the type *Move*, as it is driven by a feature on the displaced element and is intangible to Superiority.

Experiment 2 also aimed to further investigate whether the *wh*-form standing for the external animate argument *koj*, ‘who’, has a special status among the other interrogative pronouns. An accusative > nonstandard substitution was performed in half of the sentences containing an internal animate argument (conditions 3: EI+IA, 4: II+IA, 8: IA+Adj-*where* and 10: IA+Adj-*how*). The data revealed that items containing the substitute version of the interrogative pronoun were generally dispreferred. This was more strongly so in the combination of two arguments. The *kogo*, ‘whom’ > *koj*, ‘who’ substitution was better accepted in the combination of an argument and an adjunct. Overall, the Superiority obeying and violating versions of the sentences containing *koj*, ‘who’, paralleled their accusative form counterparts. In no condition was the Superiority violating version containing the nonstandard form rated significantly higher than the Superiority obeying one containing an accusative pronoun form. This leads to the conclusion that the interrogative pronoun form standing for the external agentive argument does not have a special rank among the rest of the *wh*-pronoun forms. In addition, better acceptance of the substitution in conditions 8 and 10 suggests that this alternation is more productive when there is only one *wh*-argument. On this ground, data collected from experiment 2 indicate that Pesetsky’s (2000) idea that the word forms standing for the external animate argument in Bulgarian must always precede the rest of the arguments due to special status of such an argument should be revised. The data clearly revealed that such a *wh*-form does not have a priority among the interrogative pronouns. Rather, its frequent placement first within the *wh*-cluster is an outcome of the combined action of the two interacting restrictions: *animate first!* and Superiority.

Another novel goal for experiment 2 was to verify whether the length of the *wh*-pronoun was critical for the ordering of *wh*-elements. To this end, two new conditions (9 and 10) were added, containing the adjunct *kak*, ‘how’, which is the shortest *wh*-element after *koj*, ‘who’. Conditions containing this interrogative form fully patterned with the other set of conditions containing adjuncts. No difference was observed when the second *wh*-element was of the same or comparable length to *koj*, ‘who’. Thus, the length of the *wh*-word did not seem to play a role in the order of *wh*-elements at the beginning of the clause. Therefore I conclude that the order of the *wh*-elements in the beginning of a multiple *wh*-question in Bulgarian is not defined by any particular phonological rule related to the length of the *wh*-words.

In conclusion, the overall results from the items in both experiments supported the idea that Bulgarian is among the languages where the universal Superiority restriction applies. In

addition, the data obtained in this study provides sufficient evidence to suggest the existence of an animacy-based hierarchy of interrogative pronouns in this language. Syntactically, such a hierarchy is instantiated in the proposed analysis by the fact that animate and inanimate *wh*-elements raise to different syntactic positions. Animate *wh*-elements can raise to SpecCP, whereas inanimate ones remain in SpecFocP. A direct consequence of this hierarchy is the fact that the Superiority restriction is not strictly observed in Bulgarian. It can be applied when at least one of the *wh*-elements is animate. If no animate *wh*-phrase is present, interrogative pronouns remain in SpecFocP. Given that *wh*-elements have raised to such a position to satisfy their own focus features, their order is not restricted by Superiority. Furthermore, no evidence was found to confirm the theory of a special status of the interrogative pronoun form standing for the external animate argument. Also, it became evident that the length of the *wh*-form does not play a role in ordering the elements in a multiple *wh*-question. Thus, no constraint of the type *Shortest First!* can be applied in Bulgarian.

The fillers in both experiments played an important role as well. They were not statistically planned, but were carefully selected in a manner allowing them to be used as a guideline for the preferred syntactic structure of interrogatives. They aimed to shed light on several problematic phenomena discussed in the syntactic literature relating to Bulgarian: the focal nature of the *wh*-elements; the co-occurrence of a *wh*-phrase and the interrogative particle *li*; the possibility of having an additional focused phrase in a question containing *wh*-element and *li*; and the possibility of splitting the *wh*-cluster. The results obtained through the fillers' analysis in both experiments were consistent with the findings from the items section. In addition, the results from experiment 2 further confirmed the conclusions based on the results from experiment 1. Data from experiment 1 confirmed the hypothesis stating that *wh*-elements in Bulgarian have a focus nature and that even several *wh*-elements can be followed by the interrogative particle *li* that adjoins only to focused elements in the structure. In experiment 2, in addition to the *wh*-cluster with *li*, a split version of the *wh*-cluster: *wh-li-wh* was added. The lower rating of the split by *li* cluster clearly confirmed the hypothesis that *li* is not situated in C^0 and also confirmed the idea that all *wh*-elements first raise to SpecFocP to check their focus features. Fillers containing only one *wh*-element and the interrogative particle *li* plus an additional focused element also lead to consistent results in both studies. It became clear that the combination of a *wh*-element followed directly by *li* is not the only one that is acceptable. *Wh*-interrogatives where *li* is adjoined at the very end of the clause were

rated even higher in experiment 2, thus demonstrating that although context dependent, such sentences are fully acceptable. This result further supported the idea that SpecFocP can host complex phrases, even whole clauses, and the position of the interrogative particle does not depend on a particular phonological rule, but on the information structure of the sentence. *Li* can be adjoined to any given element in the structure that is focused. Further, experiment 2 revealed a sharp contrast between sentences containing an additional focused verb or subject. This distinction is problematic for the traditional generative analysis of *wh*-questions, as both combinations should be equally acceptable under this view. Such a difference can be explained satisfactorily taking into consideration Izvorski's (1995) ideas that the verb does not undergo T-to-C movement in *wh*-interrogatives in Bulgarian, and that subjects raise out of the VP only if focused. Therefore, I interpret the results from the fillers in experiment 2 as supporting Izvorski's idea, which is fully compatible with our findings in the items section. Lastly, fillers which aimed to study the possibility of splitting the *wh*-cluster strongly supported Lambova's (2001, 2004) proposal to the effect that *wh*-elements must not necessarily form a cluster. In experiment 1, where these sentences were presented out of context, it was clear that even when graded as less acceptable than a non-split *wh*-cluster sentence, a split *wh*-cluster was not fully unacceptable. In addition, in experiment 2, after providing a context to ease the interpretation of these complicated structures, split and non-split *wh*-cluster were rated without significant difference. Thus, Lambova's (2001, 2004) hypothesis was supported. The fact that the *wh*-cluster in Bulgarian can be split is of great importance for this study, as it clearly indicates that the traditional generative structure of *wh*-questions must be revised. The possibility of splitting the *wh*-cluster further supports a syntactic structure that is adequate to provide an account of all the data collected in the two experiments presented in this and the previous chapter.

To conclude, the results of the two experiments reported in chapters 2 and 3 support the following syntactic analysis of questions in Bulgarian:

- i. Bulgarian is among the languages where the Superiority restriction operates.
- ii. In addition to the Superiority restriction, *wh*-ordering in this language is further determined by an animacy-based hierarchy among the interrogative elements.
- iii. The animacy-hierarchy is syntactically expressed by the fact that only animate *wh*-elements can raise to SpecCP.

- iv. *Wh*-movement in Bulgarian does not proceed in one step. All *wh*-elements first move to SpecFocP to check their focus feature (an instance of *Move*-type of fronting). Further, the highest animate *wh*-element raises to SpecCP (an instance of *Attract*-type of fronting). The focus phrase in this language is of the type *attract-all*, whereas the complementizer phrase can have only one *wh*-element in its specifier.
- v. The syntactic structure of *wh*-questions in Bulgarian is different from what has been traditionally assumed. My findings were consistent with Izvorski's (1995) proposal. First, there is a clause-internal focus projection situated below C. Second, there is no T-to C movement in *wh*-questions. Finally, subjects raise out of the VP only if focused.
- vi. *Wh*-words in Bulgarian do not move to the same final projection. Therefore, as suggested by Lambova (2001, 2004) the *wh*-cluster can be split by intervening adverbials and parentheticals, adjoined to SpecFocP.

CHAPTER V

ON THE SEMANTICS OF *YES/NO* QUESTIONS IN BULGARIAN

1. Introduction

In the previous chapters I discussed the possible syntactic structure and the order of question words in *wh*-interrogatives in Bulgarian. In chapter 2 I summarized some of the most influential views on this topic and proposed a novel syntactic derivation for questions in this language. I also argued that the syntax of constituent and polar interrogatives should be unified. I supported the idea that interrogatives of both types should share the same syntactic structure, as they share multiple characteristics, such as clause type, focus dependency, co-occurrence of *wh*-words with the interrogative particle, and frequently word order. In chapters 3 and 4 of this work, I presented two experiments which strengthened the initial hypothesis that *wh*-words in Bulgarian have two landing sites and that they are focused in their nature. The results from the experiments clearly showed that *wh*-elements and question particles can co-occur and that the proposed interrogative structure has correctly predicted two separate positions for both interrogative elements. The current chapter is dedicated to the semantics of polar questions in Bulgarian which, to the best of my knowledge, has not been discussed in detail in the semantic literature. The interest in polar questions lies in the fact that they are clearly focus-related and thus their semantics differs from the one traditionally assumed for *y/n* questions⁹⁸.

I will begin the chapter with a brief description of *y/n* interrogatives and how their semantic analysis is developed throughout this chapter. Polar questions in Bulgarian are typically formed by the addition of an interrogative particle (*li*) or the interrogative complementizer (*dali*)⁹⁹. They are of two types:

⁹⁸ For an overview of the ways focus can impact the interpretation of a focused element, see Beaver and Clark (2008).

⁹⁹ As it will be shown later in this chapter, *y/n* questions can also be formed without a particle. However, the most frequent way is by using the question word *dali* and the particle *li* as described above.

(1) **Li-interrogatives:**

Risuva li Ivan vseki den?

Draws li Ivan every day

‘Does Ivan draw every day?’/‘Is DRAWING what Ivan does every day?’

(2) **Dali-interrogatives:**

Dali Ivan risuva vseki den?

Whether Ivan draws every day

‘Does Ivan draw every day?’

‘(I want to know) whether Ivan draws every day.’

Based on the findings from the previous chapters, I assume that *y/n* and *wh*-questions in Bulgarian have similar syntactic structures. The two respective structures for the sentences in (1) and (2) are provided in (3) and (4) below.

(3) **Li-interrogatives:**

[CP [C [FocP V [Foc **li** [IP ...]]]]]

(4) **Dali-interrogatives:**

[CP [C **Dali** [FocP [Foc [IP ...]]]]]

The interrogative particle *li* (3) is heading a clause-internal focal projection situated below C^0 . Phrases preceding *li* are placed in either Foc^0 or $SpecFocP$ depending on their nature as heads or phrases, respectively. The interrogative word *dali* is best analyzed as an interrogative complementizer which heads the CP (4), following the traditional interpretation. Focused elements in *dali*-questions immediately follow the interrogative complementizer, and can be situated in either Foc^0 or $SpecFocP$, as in the case of *li*-questions.

I further propose a formal semantic analysis of these two types of *y/n* interrogatives. In this analysis I follow Hamblin (1973) in assuming that questions correspond to declarative sentences embedded under a question operator – a silent *Q* morpheme or *whether*¹⁰⁰. I take *li*

¹⁰⁰ In syntax such an operator corresponds to a syntactic question operator in C^0 , as proposed by Larson (1985). It can be either a null question operator [+Q] or *whether*.

and *dali* to act similarly to the silent question operator Q in English. I assume that *dali* is analogous to its English counterpart *whether*, but it can also combine with sentences containing focus. In contrast, *li* has a special feature, allowing it to combine only with structures containing focused element(s). What this means is that *li* is a focus-dependent question operator which combines with the contextually salient set containing all the alternatives created by the presence of focus. Both types of polar interrogatives may have a focused interpretation in addition to the neutral one. I demonstrate that, when the focused phrase is the negation, *y/n* questions in Bulgarian such as (7b) and (8b) below parallel English interrogatives with inverted negation (6). Polar interrogatives with preposed negation have been argued to exhibit polarity focus. Such a focus is instantiated by the so called VERUM operator whose role is to verify the degree of certainty of the interlocutor that the declarative proposition corresponding to the question should be added to the common ground.

(5) **English negative *y/n* questions:**

Does John not drink coffee?

(6) **English negative *y/n* questions with inverted negation:**

Doesn't John drink coffee?

(7) ***Li*-interrogatives:**

a) **No VERUM operator**

Ivan li ne pie kafe?

Ivan li Neg drink coffee

'Is Ivan the one who doesn't drink coffee?'

b) **With VERUM operator**

Ne pie li Ivan kafe?

Neg drink li Ivan coffee

'Doesn't Ivan drink coffee?'

(8) **Dali-interrogatives:**

a) No VERUM operator

Dali Ivan ne pie kafe?

Dali Ivan Neg drink coffee

‘Does Ivan not drink coffee?’/‘Is Ivan the one who doesn’t drink coffee?’

b) With VERUM operator

Dali ne pie Ivan kafe?

Dali Neg drink Ivan coffee

‘Doesn’t Ivan drink coffee?’

Further, I show that *y/n* questions of the type of (7a) have contrastive focus and involve the presupposition that one of the propositions – a member of the contextually-restricted set of alternatives evoked by focus – is true. Thus, (7a) does not simply ask whether Ivan does not drink coffee but in fact asks whether Ivan is the one that does not drink coffee (in contrast to someone else – a member of the salient set of individuals evoked by focus).

Finally, I attribute the ambiguity of the answers to negative *y/n* questions in Bulgarian such as it is illustrated in (9), to the fact that in this case the negated VP is focused. Since the negation and focus form a prosodic unit, these questions can have three interpretations of the focus placement (broad focus on V; narrow focus on V; focus on the polarity¹⁰¹). The three possible interpretations have contrasting answers represented as interpretation 1 (broad focus on V), and 2 (narrow focus on V, focus on the polarity) respectively.

(9) **Ambiguous answers to negative *y/n* questions in Bulgarian**

A: *Ne iskas li kafe?*

Neg want li coffee

‘Don’t you want coffee?’/‘Do you not want coffee?’/‘Do you not WANT coffee (or you don’t drink it)?’

B₁: *Da* (‘Yes’)

Interpretation 1: Yes, I want

¹⁰¹ The ambiguity of V(P)-*li*-questions is schematically illustrated in (79).

Interpretation 2: Yes, I do not want (= No, I don't want.)

B₂: *Ne* ('No')

Interpretation 1: No, I don't want.

Interpretation 2: No, it is not the case that I don't want. (= Yes, I want.)

The answers provided in B1 and B2 clearly show that a simple *yes* or *no* as an answer to a negative *y/n* question in Bulgarian is ambiguous. I argue that this is due to the fact that the answer can actually either provide a response to the question (in which case the answer's meaning is equivalent to the one in English neutral negative questions) or it can answer the implicature raised by the presence of the VERUM operator or the narrow focus on the verb. Since such an implicature manifests a polarity opposite to that of the question, the answer receives a meaning with the opposite polarity to that of a neutral negative polar question.

The chapter is organized in the following way. First, in section 2 I briefly present the two types of polar interrogatives in Bulgarian. In section 3, I go over the main points of a recent semantic analysis proposed for polar questions in English. In the following section 4, I go over the most relevant aspects of Rooth's (1992, 1995) theory of focus. In section 5 I argue that the traditional formal semantics of polar questions cannot be directly extended to Bulgarian, and in section 6 I present the solution proposed by Han and Romero (2001, 2004) for polarity questions with inverted negations in English. Finally, in section 7 I propose an analysis of *y/n* questions in Bulgarian which can account for their specific properties in contrast to those discussed with respect to English.

2. Description of Bulgarian polar questions

Polar questions in Bulgarian are normally formed with interrogative particles, of which there are of two types: (i) *li*- an enclitic adjoined to the most prosodically prominent in the question element (word, phrase, or clause), as illustrated in (1) *Risuva li Ivan vseki den?* (lit: *Draws li Ivan every day?*), and (ii) *dali*, an interrogative word appearing only in the beginning of the *y/n* question, as illustrated in (2) *Dali Ivan risuva vseki den?* (lit: *Dali draws Ivan every*

day?)¹⁰². However, *y/n* questions without interrogative words are also common in colloquial styles. For the two experiments presented in the previous chapters I used as a filler type a set of corresponding *y/n* questions, some containing the interrogative particle *li* and some without, with examples given below in (10):

(10) *Y/n* questions fillers with and without *li*

a) *Ne si predpolagal, če sāsedāt ti šte*
 Neg Aux.2p.sg.pres supposed_{p.p.sg.masc.} that neighbour-the your will
započne da zloslovi po tvoj adres?
 begin.3p.sg.fut. to calumniate. 3p.sg.subj to your address
 ‘So, you didn’t think that your neighbour would start to vilify you?’

b) *Ne si li predpolagal, če sāsedāt ti šte*
 Neg Aux.2p.sg.pres li supposed_{p.p.sg.masc.} that neighbour-the your will
započne da zloslovi po tvoj adres?
 begin.3p.sg.fut. to calumniate. 3p.sg.subj to your address
 ‘Didn’t you think that your neighbour would start to vilify you?’

In experiment 1, which did not contain any context sentences, the sentences were rated 3.90 (out of maximum of 4) for the type presented in (10a) and 3.75 for (10b), respectively. A paired samples t-test between the two results revealed that the higher rating for the sentence without the interrogative particle was significant ($t(71) = 2.26, p = .027$). I interpret this result as showing that *y/n* questions without interrogative particles are highly acceptable in colloquial styles. However, as the translation of the above examples suggests, the presence of *li* is liable to alter the interpretation of the sentences. Therefore, it is possible that the higher

¹⁰² In experiments 1 and 2 we have also seen some examples of constituent questions containing the interrogative particle *li*. Among the fillers that were highly acceptable there were sentences containing a *wh*-word immediately followed by the interrogative particle *li* (i) and *wh*-questions with added interrogative particle at the end (ii).

i. *Zašto li Maria ne iska da doide?*
 Why Q Maria Neg wants to come
 ‘Why could Maria possibly not want to come?’

ii. *Koga trāgva Ivan za Pariž li?*
 When leaves Ivan for Paris Q
 ‘When Ivan leaves for Paris?’

acceptance of the interrogative without *li* is due to the lack of a context sentence. In such a case, participants could easily accommodate or imagine a situation where the example in (10a) could be more acceptable than the one in (10b).

In order to avoid the possibility of such a bias, in the second experiment I used the sentences from experiment 1, adding an introductory sentence as context which was kept the same for both variants of the interrogative, as illustrated in (11).

(11) *Y/n questions fillers with and without li – experiment 2*

Context clause: *You look very surprised!*

a) *Ne si predpolagal, če sāsedāt ti šte*
 Neg Aux.2p.sg.pres supposed_{sg.masc.} that neighbour-the your will
započne da zloslovi po tvoj adres?
 begin.3p.sg.fut. to calumniate. 3p.sg.sub to your address
 ‘So, you didn’t think that your neighbour would start to vilify you?’

b) *Ne si li predpolagal, če sāsedāt ti šte*
 Neg Aux.2p.sg.pres li supposed_{sg.masc.} that neighbour-the your will
započne da zloslovi po tvoj adres?
 begin.3p.sg.fut. to calumniate. 3p.sg.sub to your address
 ‘Didn’t you think that your neighbour would start to vilify you?’

Interestingly, once the two versions of the interrogative were put in the same context, the results obtained differed considerably. Polar questions without the interrogative particle *li* (11a) were rated 3.56, whereas their counterparts with the interrogative particle (11b) were rated higher: 3.89. A paired-samples t-test showed that the preference for the sentences containing *li* was highly significant ($t(93) = 5.68, p < .001$). I interpret this result as due to the presence of a context and mostly to the fact that the two versions of the polar interrogative had to be interpreted within the same circumstances. I also take the results from experiment 2 to be more accurate, as the presence of the introductory clause and the requirement for participants to provide a possible answer to the interrogatives provided a better control for the correct interpretation of the tested sentences. Therefore, I assume that the results obtained in experiment 2 clearly show that the preferred *y/n* interrogative in Bulgarian is the one

containing an interrogative word/particle. However, given the high ratings of *y/n* questions without such an element, the two experiments revealed that questions without any interrogative elements are also frequently used. Their context of use, however, seems to be different from that of typical *y/n* questions formed by the addition of *li* and *dali*. For example, as it will be demonstrated later in this chapter, alternative *y/n* questions with *li* can receive only a *y/n* reading. In such circumstances, speakers will need to make use of either a question formed with *dali* or of a question without an overt interrogative element in order to get an alternative question interpretation.

Having briefly discussed the possibility of polar questions without interrogative elements, I will focus my attention in this chapter on the most typically used *y/n* interrogatives, i.e. those containing the two interrogative elements *li* or *dali*. Both *li* and *dali* can appear in matrix interrogatives, that is, in direct questions, and in embedded ones, that is in indirect questions, as illustrated in (12) and (13).

(12) ***Li* and *dali* in matrix questions**

a) *Ivan li risuva vseki den?*
 Ivan li draws every day
 ‘Is it Ivan who draws every day?’

b) *Dali Ivan risuva vseki den?*
Dali Ivan draws every day
 ‘Does Ivan draw every day?’

(13) ***Li* and *dali* in embedded questions**

a) *Iskam da znam Ivan li risuva vseki den.*
 Want._{1p.sg.pres.} to know._{1p.sg.pres.} Ivan li draws every day
 ‘I want to know if it is Ivan who draws every day.’

b) *Iskam da znam dali Ivan risuva vseki den.*
 Want._{1p.sg.pres.} to know._{1p.sg.pres.} *dali* Ivan draws every day
 ‘I want to know whether Ivan draws every day.’

The interrogative particle *li* adjoins to the most prosodically prominent element in the clause, which is normally the first word or phrase in the interrogative. The interrogative word *dali* always appears sentence-initially, and it typically preserves the SVO word order of the declarative. Two other facts are worth mentioning at this point. First, *li* can also appear at the end of the clause when the whole sentence is understood as focused. Interrogatives of this type closely resemble neutral polar questions in English in that the question is oriented to the whole clause¹⁰³, as in (14a). Second, if the element to which *li* is adjoined is the verb; interrogatives of this type could be ambiguous depending on the stress on the verb as in (14b) and (14c).

(14) **Li-interrogatives:**

Declarative word order: *Ivan risuva vseki den.*
 Ivan draws every day
 ‘Ivan draws every day.’

a) *Ivan risuva vseki den li?*
 Ivan draws every day li
 ‘Does Ivan draw every day?’

b) *Risuva li Ivan vseki den?*
 Draws li Ivan every day
 ‘Does Ivan draw every day?’

c) *RISUVA¹⁰⁴ li Ivan vseki den?*
 Draws li Ivan every day
 ‘Does Ivan DRAW every day?’/‘Is it drawing what Ivan does every day?’

(15) **Dali-interrogatives:**

Dali *Ivan risuva vseki den?*
 Whether Ivan draws every day
 ‘Does Ivan draw every day?’/ ‘(I want to know) whether Ivan draws every day.’

¹⁰³ Recall that results from experiment 2 clearly showed that such a word order is highly acceptable.

¹⁰⁴ Throughout this chapter, I use capital characters to show that the element in question is focused, i.e. that it is the most prosodically prominent element.

As suggested by the glosses of the examples above, both types of polar interrogatives in Bulgarian (14a-b) and (15) can be considered equivalent to neutral English *y/n* questions. However, as the contrast between examples (14b) and (14c) illustrates, *li*-questions in which *li* is adjoined to the verb can be ambiguous and result in a neutral (14b) and a focus reading (14c). The focused reading is typically instantiated by stressing the verb heavily, similarly to what is observed with focus stress in English. The basic theory of focus I adopt in this chapter is the widely accepted work by Rooth (1992, 1995).

The term focus is used here to describe prosodic prominences serving pragmatic and semantic functions [...]. [...] focus is marked as a feature on phrases in a syntactic description, a feature which is to have both a phonological/phonetic and a semantic/pragmatic interpretation.

[Rooth (1995), p. 1]

(16) **Effect of focus on truth conditions:**

a. *John only introduced [Bill]_F to Sue.*

b. *John only introduced Bill to [Sue]_F.*

[examples from Rooth (1995)]

The sentence in (16a) will be true if only Bill is introduced to Sue and no other introductions are made. In contrast, the sentence in (16b) can be true if there is someone else besides Bill that is introduced to Sue. However, this sentence would be false if Bill was introduced to more people than Sue.

In addition to Rooth's approach to focus, I further follow a long-standing tradition in semantics literature, assuming that a distinction must be made between information and contrastive focus (Halliday (1967), Rochemont (1986), Kiss (1998), and Vallduvi and Vilkuina (1998) among others). As pointed out by Kratzer (2004), such a focus can possibly trigger presuppositions or conversational implicatures, whereas information focus is directly related to the truth-conditions of the proposition.

Going back to the Bulgarian examples in (14) and (15), the neutral reading of the interrogative - (14a-b) and (15) - will be adequate in any context where an answer of the type: 'yes, he is' or 'no, he draws only once a week', is appropriate or felicitous, or if it is uttered out of the blue. In contrast, the question in (14c) is adequate in a situation where the speaker believes that Ivan might do other things every day rather than drawing. In this case, the

speaker either wants to make sure that Ivan in fact draws every day or s/he is being ironic, implying that Ivan does something else every day. The activity implied by this type of question must be made available by the context. It is one of the alternatives of the event evoked by focus¹⁰⁵.

The availability of both interpretations (neutral and focused in 14b-c) in *li*-questions is straightforward if we assume Selkirk's (1996) proposal on focus percolation, which states that focus can percolate to the top of the phrase. Selkirk formulates the basic focus rule and the focus projection rule given in (17a) and (17b) respectively:

(17) a) **Basic Focus Rule:** An accented word is F-marked.

b) **Focus Projection:**

i) F-marking of the *head* of the phrase licenses the F-marking of the phrase.

ii) F-marking of an *internal argument* of a head licenses the F-marking of the head.

[Selkirk (1996), p. 555]

Following the rules outlined in (17), F-marking of the verb can result in either narrow focus on the verb (focused reading, as shown in (14c) above – ‘Does Ivan DRAW every day?’) or in a broad focus on the verb, which is interpreted at the VP/IP level (recall that in contrast to English, lexical verbs in Bulgarian raise to I⁰). This latter option results in a neutral reading illustrated in (14b) where *li* adjoins to the non-stressed verb and is similar to what is shown in (14a) where the interrogative particle *li* is at the end of the clause. In both cases the resulting interpretation is ‘Does Ivan draw every day?’, similarly to neutral *y/n* questions in English.

The fact that both types of polar questions in Bulgarian can involve focus has been reported in the linguistic literature.

With regards to *li*-questions, Rudin et al. (1999) claim that when the element preceding *li* is an XP (with exception of the verb complex), that element is interpreted as focused. Given that *li* adjoins to the most prosodically prominent word/phrase in the clause, it can follow any

¹⁰⁵ I base my analysis on Rooth's (1992, 1995) theory of focus, where focus evokes a set of alternatives of the same semantic type as the focused element. Such a set of alternatives is constrained by the context, as otherwise the system will overgenerate. In section 4 of this chapter, I return to Rooth's theory and summarize the main relevant points regarding *y/n* interrogatives in Bulgarian. In addition, I assume that a difference must be made between information and contrastive focus. Section 7.4.2 reveals that such a division is critical in order to account for certain implicatures of *li*-questions.

part of the sentence, and thus, any part of the clause can be focused. Following Rudin et al. (1999), I assume that the examples provided in (18a) and (18c) below contain a focused element. Rudin et al. (1999) claim that when the verb is the element preceding *li*, as in (18b), the interrogative can only have a neutral interpretation (i.e. Does Ivan draw every day?) In contrast to their theory, I assume that the interrogative in (18b) also contains a focused element.

(18) **Li-interrogatives with focus:**

a) *IVAN li risuva vseki den?*

Ivan li draw every day

‘Is it IVAN the one who draws every day?’

b) *RISUVA li Ivan vseki den?*

Draws li Ivan every day

‘Does Ivan DRAW every day?’/‘Is it drawing what Ivan does every day?’

c) *VSEKI DEN li risuva Ivan?*

Every day li draw Ivan

‘Is it EVERY DAY that Ivan draws?’

The examples of *li*-interrogatives presented in (14a-b) differ from those in (18) in that the former can receive a neutral interpretation, as in *Does Ivan draw every day?* As the translations of the examples in (18) show, the interrogation in focused questions is not oriented to the whole clause (as it is in English), but rather to that part of the clause to which *li* is adjoined. In that case a negative answer does not negate the proposition expressed by the interrogative, but only the focused element. In other words, if (18c) is answered with *no*, it does not mean that Ivan does not draw at all, but rather that he draws with a different regularity.

In what follows, I will show that *li*-interrogatives always contain focus. However, in the case of (14a-b), focus is broad (over the whole TP), whereas in (18) focus is narrow and has scope only over one constituent, i.e. the subject in (18a); the verb in (18b); and the adjunct

in (18c). For the purposes of this study I will label the examples in (14a-b) **broad focus *li*-questions** and those in (14c) and (18) **narrow focus *li*-questions**.

Regarding *dali*-questions, Boyadžiev, Kucarov and Penčev (1999) (henceforth B.K.&P.) find that in these constructions, the first element following the interrogative complementizer can be focused. As a consequence, *dali*- questions can also exhibit focus and be oriented only to the focused element in the structure:

(19) **Dali-interrogatives with focus:**

a) *Dali Ivan risuva vseki den?*

Whether *Ivan* draws every day

‘(I want to know) whether Ivan draws every day.’

b) *Dali IVAN risuva vseki den?*

Whether *Ivan* draws every day

‘(I want to know) whether IVAN draws every day.’

‘(I want to know) whether IVAN is the one who draws every day.’

c) *Dali RISUVA Ivan vseki den?*

Whether draws *Ivan* every day

‘(I want to know) whether Ivan DRAWS every day.’/‘(I want to know) whether it is drawing what Ivan does every day.’

d) *Dali VSEKI DEN risuva Ivan?*

Whether every day draws *Ivan*

‘(I want to know) whether Ivan draws EVERY DAY.’

When the word order in a question formed with the interrogative word *dali* corresponds to that of a declarative sentence with *dali* in sentence-initial position (19a), the interrogative receives a neutral interpretation. However, if (having declarative word order), the subject is additionally stressed, as in (19b), the subject is interpreted as focused and the interrogative receives an interpretation similar to that of *li*-questions when *li* is adjoined to the subject (18a). The fact that there is a focused element in the structure can also be signaled by altering the

SVO word order, as in (19c-d). In such a case, the focused element is the one following *dali*. The resulting interpretation is parallel to that of a *li*-interrogative when *li* is adjoined to the respective element. In other words, (19c) corresponds to (18b) and (19d) to (18c), respectively.

To summarize, I propose that although the two main types of polar questions in Bulgarian can have parallel interpretations, they behave differently. *Li*-questions are focused by default, whereas *dali*-questions do not have to involve focus (although they can). In *li*-questions, neutral interpretation is observed when there is a broad focus on the TP and focused interpretation is reported when focus is narrow. *Dali*-questions are typically interpreted as neutral *y/n* questions if the word order in the interrogative corresponds to that of the declarative clause. Change of the SVO word order, or additional stress on the subject (if the SVO order is preserved), however, signal that the element following *dali* is focused and that the question is oriented only to that part of the sentence.

Overall, similarly to English *y/n* interrogatives, *dali*-questions when neutral are oriented towards the whole proposition, as illustrated in (15). This construction is characterized by the following features: the interrogative complementizer *dali* is clause-initial, the word order after *dali* is identical to that of a declarative clause, and the scope of the interrogation in these questions spans the whole clause. Likewise, *li*-questions can also be interpreted as neutral as in (14a) and (14b). This happens when *li* is adjoined to the end of the clause or when it is adjoined to a verb which is not heavily stressed. In addition, both types of polar questions can be focus-sensitive. *DaliI*-interrogatives offer the possibility of being interpreted as constituent questions by allowing focus on the word immediately following the interrogative word, as in (19b-c-d). Thus, the interrogative resembles an ordinary *wh*-question such as *who draws every day?* in that the interrogative complementizer has scope only over the focused element¹⁰⁶. Similarly, focused *li*-questions are also oriented to part(s) of the sentence. The interrogative particle *li* is encliticized to the element in question – the most prosodically prominent word/phrase in the sentence, as in (18) (i.e. *Ivan li...* = *Is it Ivan who...*), above¹⁰⁷. Thus, the position of *li* depends on the intonation, and consequently, on the

¹⁰⁶ For a more general view of scope in questions and in particular on scope in *wh*-interrogatives, see Aoun (1986), Aoun and Li (1993, 2003), Bradner, E. (2000); Dayal (2000) for a cross-linguistic view on scope marking, among others.

¹⁰⁷ The scope properties of the question words are also reflected by the fact that *y/n* questions in Bulgarian follow the question-answer paradigm described by Rooth (1995). This is discussed in more detail in section 4 of this chapter.

information structure of the sentence. The scope of the question in examples (20) and (21) is over that part of the clause to which *li* has encliticized. *Li* can be adjoined to any of the elements of the sentence, as long as this element is focused:

(20) ***Li* encliticizes only to the focused element:**

a) *KUČETO li namerixte?*
 Dog-the li find._{Aor.2pl.}
 ‘Is what you found the dog?’

b) *Da, KUČETO namerixme.*
 Yes dog- the find._{Aor.2pl.}
 ‘Yes, what we found is the dog.’

[B.K.&P. (1999), ex. 612]

c) **KUČETO sâsedite li izgubixa?*
 Dog-the neighbours li lost._{Aor.3pl.}
 ‘Is it the dog that our neighbours lost?’

The examples in (20) suggest that *li* can adjoin only to the focused element (cf. 20a and 20c). In addition, the word order of the adequate answer parallels the order in the *li*-question, which supports the contention that the NP to which *li* was adjoined is the focus of the clause.

The position of the Bulgarian question particle *li* is related to phonological factors but this item is not a second position clitic, in contrast with Serbo-Croatian *li*¹⁰⁸. This is illustrated in (21) below:

(21) **The position of *li*:**

a) *Sâsedite KUPIXA li kuče?*
 Neighbours-the bought li dog
 ‘Did our neighbours buy a dog?’

¹⁰⁸ For details and comprehensive discussion on clitics in Slavic and in particular in Bulgarian and Macedonian, see Alexandrova (1997), Avgustinova (1994), Boeckx and Stjepanović (2000), Bošković (2001b), Caink (1998), Dimitrova-Vulchanova (1995), Dimitrova-Vulchanova and Hellan (1999), Franks (1998, 2005a, 2005b, 2005c), Franks and King (2000), Franks and Rudin (2005), King (1996), Legendre (2000), Pancheva (2001, 2005), Penčev (1993), Rivero (1997), Rudin (1997), Stateva (2001, 2005), Tomić (1996, 1997, 2004c), among others.

b) *Sâsedite* *KUČE* *li* *kupixa?*
 Neighbours-the dog li bought
 ‘Is it a dog that our neighbours bought?’

c) *Sâsedite* *kupixa* *kuče* *li?*
 Neighbours-the bought dog li
 ‘Did our neighbours buy a dog?’

The examples in (21) show that the word/phrase to which *li* adjoins does not have to be sentence-initial (cf. 21a and 21b). In addition, *li* can encliticize to the whole clause, suggesting that the whole sentence is interpreted as focused (21c).

To summarize, there are two types of *y/n* questions in Bulgarian: *dali* and *li*-questions. Both types of interrogatives are similar to English *y/n* questions when neutral (see glosses in ex. 1-2). Crucially, both types of questions can be associated with focus, and, similarly to *wh*-questions, can be oriented towards a part of the clause.

3. The formal semantic analysis of *y/n* interrogatives

Frequently, the denotation of a polar question is assumed to be either the set of its true answers, as proposed by Karttunen (1977), or the set of its possible answers, as argued by Hamblin (1973)¹⁰⁹. A formal semantic theory of questions along these lines has three major consequences. First, as pointed out by Karttunen (1977), direct and embedded interrogatives have equivalent semantics. Second, constituent and polar questions have the same type of denotation, i.e. sets of propositions containing their true/possible answers. If a Karttunen-style semantics of questions is used, a *y/n* interrogative denotes the unique set containing either the positive or the negative proposition corresponding to the positive or negative version of the declarative form of the interrogative, whichever happens to be the true one. If a Hamblin-style approach is applied, a *y/n* interrogative denotes a set of propositions containing both – the positive and the negative version corresponding to the declarative contained in the question.

¹⁰⁹ For a more contemporary semantic analysis and an insightful discussion on polar questions, see Büring and Gunlogson (2000), Groenendijk and Stokhof (1984), Han (1998), Ladd (1981), Ladusaw (1980), and Romero and Han (2001) among others.

The third direct outcome of these analyses is that positive and negative *y/n* questions share the same denotation.

Romero and Han (2004) (henceforth R&H) implement Hamblin's approach with an updated analysis, using an interrogative operator Q instead of the proto question rule. The denotation of a polar question is then computed in the following way¹¹⁰:

(22) **Denotation of the question operator:**

$$[[Q]] = \lambda p_{\langle s,t \rangle} \lambda w_s. \lambda q_{\langle s,t \rangle} [q = p \vee q = \neg p]$$

The question operator is a function which takes as an argument a proposition p and maps it to a property of worlds w . After the world argument is saturated, the outcome will be a property true of propositions that are either p or $\neg p$.

In order to develop the semantics of negative polar questions, R&H use the denotation for negation presented in (23) below:

(23) **Denotation of negation:**

$$[[\text{not}]] = [[\text{n't}]] = \lambda p_{\langle s,t \rangle}. \neg p$$

Negation is a function which takes as its argument a proposition p and gives as a result the opposite proposition, i.e. a positive clause becomes negative and vice-versa.

In summary, R&H assume that polar questions in English are declarative clauses embedded under a silent question operator (Q). Negative polar questions are equivalent to negative declarative clauses embedded under Q . The negative declarative clause respectively corresponds to a declarative clause embedded under negation. The resulting denotations for polar question are represented in (24) and (25):

(24) **Interpretation of positive polar questions:**

- a. Is Jane coming?
- b. LF: [_{CP} Q [Jane is coming]]
- c. **[[Jane is coming]]** = $\lambda w. \text{come}(j, w)$

¹¹⁰ R&H (2004), p. 616-617, ex. 19-21.

- d. **[[Q Jane is coming]]** (w_0)
 $= \lambda q [q = \lambda w. \text{come}(j, w) \vee q = \lambda w. \neg \text{come}(j, w)]$
 $= \{\text{that Jane is coming, that Jane is not coming}\}$

The question *Is Jane coming?* has the logical form of the declarative clause *Jane is coming*, embedded under a silent question operator Q (24b). The denotation of the declarative clause is the proposition that is true in a world w if Jane is coming (24c). The question operator then takes as an argument the declarative clause *Jane is coming*, and produces a property of worlds. Once the world argument is saturated, the outcome is a set of propositions equivalent to the positive or negative version of the clause, i.e. {'that Jane is coming', 'that Jane is not coming'}. The resulting partition of the logical space is of the type: $p/\neg p$, where p is equivalent to *Jane is coming*.

The interpretation of negative polar questions is analogical to that of the positive ones:

(25) **Interpretation of negative polar questions:**

- a. Is Jane not coming? / Isn't Jane coming?
b. LF: [_{CP} Q [not [Jane is coming]]]
c. **[[not [Jane is coming]]]** = $\lambda w. \neg \text{come}(j, w)$
d. **[[Q Jane is not coming]]**(w_0)
 $= \lambda q [q = \lambda w. \neg \text{come}(j, w) \vee q = \lambda w. \neg \neg \text{come}(j, w)]$
 $= \{\text{that Jane is not coming, that Jane is coming}\}$

The only difference between (24) and (25) is that the question operator in (25) has scope over a negative declarative clause. However, the resulting partition of the logical space is the same, and the two sentences have equal interpretations. In both cases the interrogative operator takes scope over the proposition q . In addition, the set of propositions denoted by positive and negative questions is the same, thus positive and negative polar questions must have the same denotation. Crucially, both sets contain only positive and negative variants of the proposition itself.

R&H (2004) point out that this semantic interpretation is suitable only for neutral polar questions in English. However, such an analysis cannot be applied successfully to *y/n* questions with inverted negation which do not exhibit the same properties as neutral polar

interrogatives. In R&H's view, *y/n* questions with inverted negation contain focus on the polarity and their semantics cannot be calculated in the traditional fashion.

Before I go back to the Bulgarian examples and show why the traditional semantics analysis of *y/n* questions cannot be directly applied to them either, it is essential to discuss some of the aspects of Rooth's (1985, 1992, 1995) theory of focus¹¹¹. His idea that focus evokes sets of alternatives will be the basis of the analysis for polar questions with inverted negation in English (H&R, 2001; R&H, 2004). It will also provide the foundations of the semantic approach proposed for Bulgarian focused *y/n* questions in this chapter.

4. Rooth's (1992, 1995) theory of focus

Three are the most important component from Rooth's theory on focus that are relevant for the analysis of focused polar questions: (i) the way the semantics of focus is derived; (ii) the question-answer paradigm; and (iii) the semantic representation of focus related adverbs such as English *only*.

4.1. Semantics computation of a focused element.

Rooth (1995) discusses several approaches to derive the semantics of focus. In order to account for the fact that focused elements can change the truth conditions of a sentence, Rooth proposes that the semantics of a focused phrase should be different from the ordinary semantic calculation. He proposes that the semantic value of a focused phrase must be calculated by applying the following rules:

(26) Rules for deriving the focus semantic values:

- i) The focus semantic value of a focused phrase of semantic type τ is **the set of possible denotations** of type τ .
- ii) The focus semantic value of a **non- focused** lexical item is the unit **set of its ordinary semantic value**.

¹¹¹ For further details on focus in Generative Grammar and discussion on its cross-linguistics characteristics, see Arnaudova (2003), Beaver and Clark (2008), King (1995), Rochemont (1986), Stoyanova (2008), Zubizarreta (1998) among many others.

iii) Let a be a non- focused complex phrase with component phrase $a_1 \dots a_k$, and let Φ be the semantic rule for a , e.g. functional application. The focus semantic value of a is the set of things obtainable as $\Phi(x_1 \dots x_k)$, where $x_1 \in [[a_1]]^f \wedge \dots \wedge x_k \in [[a_k]]^f$.

[Rooth (1995) ex. 27]

The basic idea behind those rules is that the semantic value of a focused phrase is a set of alternatives of the same semantic type as the phrase. In addition, the calculation of the semantic value of an expression containing a focused phrase is done by applying the rule for the semantic calculation of the phrase to each of its parts, including the focused one. In that case, in lieu of the focused phrase, a variable of the same type is used to calculate the semantic value of the entire expression.

According to this theory, the set of alternatives generated by focus is further restricted by the context. In the case of the question-answer paradigm, answers to questions containing focus are restricted by the questions themselves. In declaratives, the set of alternatives could also be restricted by the discourse.

4.2. Question-answer paradigm

Rooth (1992, 1995) relates the position of focus to the *wh*-expression in a constituent question or that part of the information which is unknown for the speaker¹¹². Thus, only the answers in (27b) and (28b) can be adequate, but not the ones in (27c) and (28c), as illustrated:

- (27) a) - Does Ede want tea or coffee?
 b) - Ede wants [coffee]_F¹¹³
 c) * [Ede]_F wants coffee.

- (28) a) - Who wants coffee?
 b) - [Ede]_F wants coffee.
 c) * Ede wants [coffee]_F

[Rooth (1995), p. 1]

¹¹² For an alternative view and discussion on the relation between focus, questions, and their answers, see Kuno (1982), and also Beaver and Clark (2008) for a more contemporary overview on these topics.

¹¹³ F denotes that the element between the brackets is the focused one.

As mentioned earlier, focused *y/n* interrogatives parallel to a big degree constituent questions in that the question is oriented only to part of the proposition, and not to the whole clause. Thus, this analysis of focus will predict that answers to focused questions should have the same pattern as (27) and (28). The examples below examine how this paradigm works for Bulgarian *y/n* questions.

(29) **Focused *dali*-questions and their possible answers:**

a) *Dali* *IVAN* *risuva* *vseki* *den?*¹¹⁴

Whether *Ivan* draws every day

‘(I want to know) whether IVAN draws every day.’/ ‘(I want to know) whether IVAN is the one who draws every day.’

b) *Ne,* *PETAR_F* *risuva* *vseki* *den.*

No *Petar* draws every day

‘No, Petar is the one who draws every day.’

c) **Ne,* *Ivan* *PEE_F* *vseki* *den.*

No *Ivan* sings every day

‘No, Ivan SINGS every day.’

As can be seen from the examples in (29) above, the same parallel is valid for Bulgarian polar questions containing a focused element. The new information should contain an element of the same semantic type and syntactic role as the focused element, just as in the *wh*-questions paradigm. The same observation is valid for *li*-questions, as expected.

¹¹⁴ Contrast the answers to this question to the possible answers of a neutral *dali*-question:

i) *Dali* *Ivan* *risuva* *vseki* *den?*
Whether *Ivan* draws every day
‘Does Ivan draw every day?’

ii) *Ne,* *Petar* *risuva* *vseki* *den.*
Neg *Petar* draws every day
‘No, Petar draws every day.’

iii) *Ne,* *Ivan* *pee* *vseki* *den.*
Neg *Ivan* sings every day
‘No, Ivan sings every day.’

(30) *Li*-questions and their possible answers: *Li*-adjoined to the subject¹¹⁵

a) *IVAN li risuva vseki den?*

Ivan li draws every day

‘Is Ivan the one who draws every day?’/‘Does IVAN draw every day?’

b) *Ne, PETĀR_F risuva vseki den.*

No Petar draws every day

‘No, it is Petar who draws every day.’

c) **Ne, Ivan PEE_F vseki den.*

No Ivan sings every day

‘No, Ivan SINGS every day.’

¹¹⁵ Note the contrast between (30a) and its respective answers (30b) and (30c) when compared to (31a) and its answers (31b) and (31c). The fact that (31a) does not accept (31c) as an adequate answer reveals that the verb to which *li* is adjoined is focused and that this question is not neutral. A truly neutral *li*-question (as when the interrogative particle is at the end of the clause) should accept both possible answers. This prediction is borne out by the data.

i) *Ivan risuva vseki den li?*
Ivan draws every day li
‘Does Ivan draw every day?’

ii) *Ne, PETĀR_F risuva vseki den.*
No Petar draws every day
‘No, it is Petar who draws every day.’

iii) *Ne, Ivan PEE_F vseki den.*
No Ivan sings every day
‘No, Ivan sings every day.’

iv) *Ne, Ivan risuva [VSEKI DEN]_F.*
No Ivan draws every day
‘No, Ivan draws every day.’

v) *Ne, Petār pee prez den.*
No Petar sings through day
‘No, Petar sings every other day.’

As the answers to (i), shown in (ii) through (v) illustrate, when a *li*-question is really neutral, all possibilities are acceptable, as each or none of the elements of the clause can be focused.

(31) ***Li*-questions and their possible answers: *Li*-adjoined to the verb**

a) *RISUVA li Ivan vseki den?*

Draws *li* Ivan every day

‘Does Ivan DRAW every day?’/‘Is it DRAWING what Ivan does every day?’

b) *Ne, Ivan PEEF vseki den.*

No Ivan sings every day

‘No, Ivan SINGS every day.’

c) * *Ne, PETARF risuva vseki den.*

No Petar draws every day

‘No, it is Petar who draws every day.’

The parallel between *li*-questions and constituent questions is even more straightforward, as *li* adjoins to the most prosodically prominent element in the clause. In a constituent question, the *wh*-element is also the most prosodically prominent element. Therefore, there is a clear relation between the element to which the interrogative particle *li* is adjoined and the *wh*-word, in that both represent the focused element in the clause. As a *li*-question is clearly only referring to that element of the sentence to which *li* is adjoined, it is expected for possible answers to be parallel to those of *wh*-interrogatives. However, such a parallel does not seem to hold in English:

(32) ***English polar questions and their possible answers:***

a) *Does John read every day?*

b) *No, Peter reads every day.*

c) *No, John plays the piano every day.*

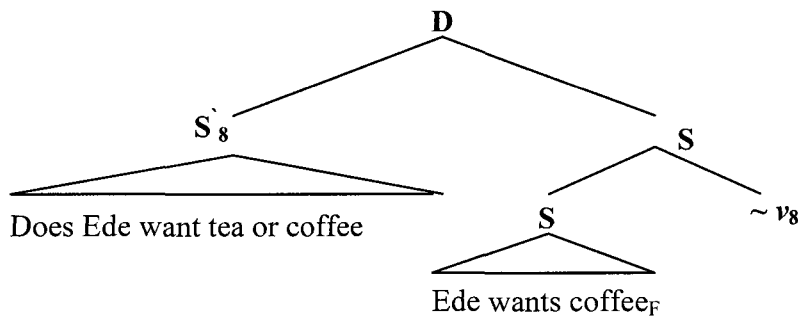
d) *No, John reads only once a week.*

As the example in (32) shows, neutral polar questions in English do not seem to contain an element parallel to the focused element of Bulgarian *li*-questions. Consequently, their answers do not have to follow the same question-answer paradigm as the one for *wh*-questions. A negative answer to a polar question in English simply implies the negation of the whole

proposition. Any element could be added as new information to the answer and this would be acceptable. This fact shows that there is no focused element present in typical *y/n* questions. Thus, it is not surprising that their semantic computation contains only a positive and a negative version of the declarative corresponding to the interrogative sentences. However, as the previous examples showed, focused *dali*-questions and all *li*-questions (unless *li* is adjoined at the end of the clause) do not seem to pattern in the same way. Therefore, it is not surprising that their semantic computation results in a different set of propositions. Given that these interrogatives contain focused elements; the set of possible answers should be restricted by the context on the one side and by the focused element, on the other.

In order to account for the inadequacy of certain answers, Rooth (1995) postulates the Question-answer paradigm, illustrated in (33) below:

(33) **Question-answer paradigm**



[Rooth (1995), ex. 19]

The variable $v\delta$ denotes an alternative set. The focus interpretation constraints this variable; however, it does not fix its reference uniquely. The syntactic combination of a proposition ϕ , the squiggle operator (\sim) and the alternative set ($v\delta$) introduces the presupposition that this contextually-dependent set of alternatives is a subset of the focused semantic value of ϕ , containing the ordinary semantic denotation of ϕ and at least one more element.

“In the question-answer paradigm the antecedent for the variable introduced by focus interpretation can be taken to be the ordinary semantic value of the question itself... In the present case, the ordinary semantic value of the question is a set containing just the propositions 'Ede wants tea' and 'Ede wants coffee'. The constraint introduced by \sim

[the squiggle operator] *in this case is that v_8 is a set of propositions of the form 'Ede wants y ' containing 'Ede wants coffee' and something else. Thus the question and answer contribute consistent characterizations of the set of propositions v_8 .*"

[Rooth (1995), p.7]

Given the semantics of questions adopted, the set of alternatives evoked by focus in (33) will be: {Ede wants coffee; Ede wants tea}. In the question-answer paradigm the squiggle operator has scope over the answer. This fact accounts for the inappropriateness of (27c) and (28c), where the focus in the answer is shifted to a different element.

4.3. Semantic representation of focusing adverbs, English *only*

A final critical part of Rooth's (1995) theory of focus is the way he treats focusing adverbs like English *only*, which I take as an example of how focus-sensitive operators can combine with the focus semantic value (C) of a focused element.

Under the alternative analysis of focus (where the focus semantic value of a phrase like [[Ede wants [coffee]_F]] is a set of propositions of the type 'Ede wants y '), Rooth proposes that focusing adverbs like *only* combine with a focus semantic value of a proposition and give rise to the presupposition for that proposition. Rooth points out, however, that the focus alternative set with which focusing adverbs like *only* combine must be restricted in order to avoid overgeneration. He proposes that *only* should not quantify directly over the focused semantic value of a proposition, but rather over an implicit variable (C) whose reference is fixed by the context. Rooth assumes the following representation:

(34) [_S only(C) [_S [_S John introduced Bill_F to Sue] ~ C]]

[Rooth (1995), ex. 20]

The focusing adverb *only* quantifies over the implicit variable, represented by C in the example in (34). This variable ranges over sets of propositions and its reference is context-dependent. Based on the representation in (34), Rooth defines *only* in the following way.

$$(35) \quad \lambda C \lambda p \forall q [q \in C \wedge \forall p \leftrightarrow q = p]$$

[Rooth (1995), ex. 21]

The focus-sensitive adverb *only* is a function that quantifies over the contextually-dependent variable C . The proposition p represents the overt argument of *only* and q is “the universally quantified proposition variable”. The difference between the representation of *only* in alternative semantics and the current one is the domain of quantification for *only*. Instead of quantifying over the focus semantic value of p , *only* needs to quantify only over C , a contextually-dependent subset of the set of alternatives evoked by focus. Such a representation restricts the domain of quantification for *only*, thus avoiding the problem of overgeneration. In addition, given that *only* quantifies over the implicit variable C , this representation also includes the idea that the speaker has the presupposition that C includes p and at least one more proposition.

Having presented the aspects of Rooth’s theory of focus, relevant to our discussion, in the next section I return to Bulgarian polar interrogatives and show that the traditional formal semantic analysis of *y/n* questions cannot be applied directly to Bulgarian.

5. The Bulgarian puzzle

5.1. Neutral and focused questions are not equivalent

In Bulgarian, similarly to English, the calculation of the semantic interpretation of *y/n* interrogatives in (24) *Is Jane coming?* and (25) *Is Jane not coming?* can only be directly applied to polar questions with neutral interpretation. In these constructions, the interrogative operator takes scope over the whole proposition, as is the case for English *y/n* questions. However, this analysis presents several problems for narrow focus *li*- and focused *dali*-questions¹¹⁶. Compare the two types of questions:

¹¹⁶ R&H (2004) take Bulgarian *li*-questions to be equivalent to English polar questions with inverted negation (p.614, ex. 16). However, they consider only one specific case. I return to this problem later in the chapter.

(36) **Li- interrogatives with neutral interpretation (broad focus):**

Ivan risuva vseki den li?

Ivan draws every day li

‘Does Ivan draw every day?’

Possible answers: Yes, he does (draw every day). / No, he does not (draw every day).

(37) **Narrow focus li- interrogatives:**

RISUVA li Ivan vseki den ?

Draw li Ivan every day?

‘Does Ivan DRAW every day?’ (‘Does Ivan draw every day or he does something else?’)

Possible answers:

a) Yes, he does (draw every day). / No, he does not (draw every day).

b) No, he WATCHES TV every day. (or does something else, depending on the context)

(38) **Neutral dali- interrogatives:**

Dali Ivan risuva vseki den?

Whether Ivan draw every day

‘(I want to know) whether Ivan draws every day.’ / ‘Does Ivan draw every day?’

Possible answers: Yes, he does (draw every day). / No, he does not (draw every day).

(39) **Focused dali- interrogatives:**

Dali RISUVA Ivan vseki den?

Whether draw Ivan every day

‘(I want to know) whether Ivan DRAWS every day (or he does something else).’

Possible answers:

a) Yes, he does (draw every day)./No, he does not (draw every day).

b) No, he WATCHES TV every day. (or does something else, depending on the context)

Note that only the translations of the questions with neutral interpretation, i.e. (36) & (38), but not their respective counterparts (37) & (39) correspond to English neutral interrogatives. Following the calculation in (24), the denotation of (36) must be equivalent to the one of (37) and correspond to the set {‘that Ivan draws every day’, ‘that Ivan doesn’t draw every day’}, producing a partition of the logical space of the type $p/\neg p$. If this calculation is applied to the examples in (36) and (38), the right predictions are obtained. However, in (37) the question is only about the action. The subject and circumstances of the event are taken for granted. This can be seen by considering the negative answer to the question in *b*. Negation in this case leaves intact the information that there is something that Ivan does every day. In asking this question the speaker seems to have a set of alternatives in mind (either *Ivan draws every day*, or *he reads every day*, or *he watches TV every day*¹¹⁷). The proposition embedded under Q corresponds to one of the alternatives, but the space of answers contains more possibilities. This can be observed through the fact that when the answer is negative, it is immediately obvious that one of the other alternatives holds. In section 7.4.1 I propose a semantic analysis for the focus-sensitive question operator that captures this observation. The same is valid for the example in (39). Intuitively, the negative version of the declarative contains a contextually salient set of alternatives of the event. Thus, the negative answer can imply that if Ivan does not draw every day, he does something else instead (read a book, watch TV, etc.). Given that the verb is focused and focused expressions generate alternatives of the same type as the focused element (Rooth, 1992, 1995), it seems that the set of true answers contains the declarative equivalent to the y/n question and all contextually salient alternatives. The case when there is no context and a polar question is uttered out of the blue is the only one that could yield a set of answers containing only $p/\neg p$. However, when context is available, a negative answer ($\neg p$) can imply that another proposition – a member of the set of alternatives evoked by focus – is true. In that sense, one could interpret that the partition $\neg p$ contains more propositions than just the negative version of the declarative.

¹¹⁷ The examples above represent a simplified version of the problem, as they illustrate only a case when there is a narrow focus on the verb and there is no overt object. However, any element/constituent of the clause can be focused, thus leading to more alternatives than $p/\neg p$ in the set of possible answers. I discuss in detail this problem in section 7.4 where I propose a novel semantic analysis of this type of focused interrogatives.

5.2. Positive and negative focused questions have distinct denotations

According to the formal semantic analysis introduced in section 3, positive and negative *y/n* questions must have the same denotation. In English this is reflected by the fact that positive and negative polar questions share their answers. In contrast, this is not the case in Bulgarian *y/n* questions, as the following comparison of English and Bulgarian suggests.

(40) English positive polar questions:

A: - *Have you seen John?*

B₁: - *Yes* = I have seen him.

B₂: - *No* = I haven't seen him. (Does not imply *I haven't seen him, but I have talked with him. or I saw someone else.*)

The example above illustrates a typical *y/n* question in English. A positive answer to it is equivalent to a positive declarative version of the question itself and a negative answer is equivalent to a negated version of the interrogative clause. What is more, the negative answer to the question does not imply that the interlocutor has had another relation with John (e.g. talk to him, email him, etc.) or has seen someone else, but not John. The same is observed in negative polar questions in English as well.

(41) English negative polar questions:

A: - *Haven't you seen John?*

B₁: - *Yes* = I have seen him (* = I haven't seen him)

B₂: - *No* = I haven't seen him. (* = I saw him), (* = I didn't see him but I saw someone else, * I didn't see him but I talked to him.)

As it can be seen in the above paradigm, the answers to a negative polar question in English have the same meaning as the ones given to a positive *y/n* interrogative. In addition, they are not ambiguous and negation does not imply that some other event has taken place.

Below, I compare the English paradigms to those associated with Bulgarian polar questions. Positive *y/n* interrogatives behave like their English counterparts. However, answers to negative *y/n* questions can be ambiguous if they contain only *yes* or *no*:

(42) **Bulgarian positive *li* -questions:**

A: - *Viždaš li Ivan?*
 See._{2p.sg.pres.} li Ivan
 ‘Do you see Ivan?’

B₁: - *Da* ‘Yes’ = I see him.

B₂: - *Ne* ‘No’ = I don’t see him. (If the verb in A’s utterance is stressed, can imply: *I talk to him/I write him emails ...*)

The answers to the positive *y/n* question in Bulgarian are analogous to those in English. They are not ambiguous regarding whether the event took place or not. Nonetheless, a negative answer could have a possible implicature that another event takes place with regards to Ivan.

One would expect, therefore, that negative polar questions would follow the same pattern in that there should be no ambiguity with regards to whether the event in question has happened or not. However, this is not the case, as (43) suggests.

(43) **Bulgarian negative *li* -questions:**

A: - *Ne viždaš li Ivan?*
 Neg see._{2p.sg.pres.} li Ivan
 ‘Don’t you see Ivan?’

B₁: - *Da* ‘Yes’ = I see him. /≠ I don’t see him.

B₂: - *Ne* ‘No’ = I don’t see him. /≠ I see him. (As with positive questions, *I don’t see him* can imply ...*but I talk to him*, etc.)

Surprisingly, in contrast to English, the answers to a negative polar question containing only a *yes* or a *no* are ambiguous in Bulgarian. Both *yes* and *no* can either confirm the event or reject it, as B₁ and B₂ indicate. In addition, when the meaning conveyed in a positive *y/n* question, is

'*I don't see him*', it could be interpreted as the speaker is being involved in any kind of contextually salient activity related to Ivan (... *but I talk to him; but I email him...*).

The data presented in the above example often seem beyond belief. This, together with the fact that speakers of English would not always trust this piece of data, led me to test the possibility of a positive answer beginning with either *yes* or *no* in the part of experiment 1 where fillers were used.

The filler type consisted of a short dialogue of the following type:

(44) A: *Ne iskaš li sladoled?*
 No want.2p.sg.pres. li ice-cream
 'Don't you want ice-cream?'

B₁: *Da, iskam, kak da ne iskam.*
 Yes want.1p.sg.pres. how to not want
 'Yes, of course I want.'

B₂: *Ne, iskam, kak da ne iskam.*
 No want.1p.sg.pres. how to not want
 'Yes, of course I want.'

Participants in the experiment were asked to rate the answer to the question and its adequacy (participants in each group would see only one version of the answers). The mean ratings for the two answers were: 3.85 (out of 4) for the positive answer with *yes*, and 2.89 for the one containing the negation. To check whether such a difference was significant, an independent samples t-test was conducted. The result revealed that the preference for a positive answer beginning with *yes* was not significant ($t(81) = 2.25, p = .250$). In their comments participants frequently mentioned that the positive answer containing *yes* was clearer; however, they also pointed out that the negative version of the answer was also acceptable. I take the grading of this filler type to clearly indicate that both options for the answer are available in Bulgarian, independently of the fact that only a short *yes* or *no* can be very ambiguous.

Interrogatives formed with the complementizer *dali* behave in the same fashion:

(45) **Positive dali -questions:**

A: - *Dali viždaš Ivan?*
Dali see.2p.sg.pres. Ivan
'Do you see Ivan?'

B₁: - *Yes* = I see him.

B₂: - *No* = I don't see him. (Can imply: ...*but I write to him*; ...*but I talk to him*, etc.)

(46) **Negative dali-questions**

A: - *Dali ne viždaš Ivan¹¹⁸?*
Dali Neg see.2p.sg.pres. Ivan
'Don't you see Ivan?'

B₁: - *Yes* = I see him. / = I don't see him.

B₂: - *No* = I don't see him. / = I see him. (As in positive questions, *I don't see him* can imply: ...*but I write to him*; ...*but I talk to him*, etc.)

As in negative polar questions with *li*, a simple *yes* or *no* answer to a negative *dali*-question is ambiguous. Again, depending on the context, '*I don't see him*' could also imply that '*I talk to him*' or '*I write to him*.'

To summarize, if positive and negative *y/n questions* in Bulgarian had exactly the same interpretation, they would have equal answers, as is the case in English, (40) and (41). However, a Bulgarian speaker almost always needs to clarify the answer, given that a simple *yes* or *no* is ambiguous, as illustrated in the examples (42) through (46). Such an ambiguity can be successfully explained considering that the question itself could be interpreted in various ways. I believe the analysis I propose here can shed light on this phenomenon. I return to this problem in section 7.3.3, at the end of this chapter.

¹¹⁸ Note that since Bulgarian is a pro-drop language, both *dali*-questions can receive neutral or focused interpretation, depending on the stress on the verb.

6. R&H's solution for English *y/n* questions with inverted negation

Han and Romero (2001) (henceforth H&R) and Romero and Han (2004) study the properties of negative polar questions in English and compare the semantics of interrogatives with and without inverted negation. The two types of questions are illustrated in (47).

(47) English negative polar questions

a) Non-inverted negation:

*Did John **not** drink coffee or tea?*

b) Inverted negation:

***Didn't** John drink coffee or tea?*

Romero and Han claim that preposed negation (47b) always carries VERUM focus (focus on the polarity), whose contribution is to make sure that the uttered proposition must be added to the common ground. Such a focus must always be exhaustive, i.e. it signals that "*the uttered sentence is the only one that is true out of the set of focus alternatives*"¹¹⁹.

They also note that focus on the polarity can be observed in positive questions and in negative questions without inverted negation as well. In positive questions, focus on the polarity takes place when the auxiliary is focused (heavily stressed). In negative questions with non-inverted negation, focus on the polarity is observed when the negation is heavily stressed. In all cases, focus on the polarity contributes to the partitioning of the logical space of the type: FOR SURE-CG_x p/¬FOR SURE-CG_x p¹²⁰. Interrogatives with VERUM focus are characterized by the following properties:

- (i) Lack of alternative readings in alternative *y/n* questions;
- (ii) Epistemic implicature with polarity opposite to that of the question;
- (iii) Partition of the logical space of the type:

FOR SURE-CG_x p

;

¬ FOR SURE-CG_x p

¹¹⁹ H&R (2001), p. 267.

¹²⁰ CG stands for common ground.

The interpretation of an interrogative containing focus on the polarity is done via a VERUM operator which takes scope over the whole declarative clause, but is lower than the silent Q(uestion) operator.

(48) **Denotation of VERUM¹²¹:**

$$[[\text{VERUM}_i]]^{gx/i} = [[\text{really}_i]]^{gx/i} = \\ \lambda p_{\langle s, t \rangle} \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w') [p \in \text{CG}_{w''}]] = \text{FOR-SURE-CG}_x$$

The VERUM operator is a function that takes as its argument a proposition p and provides as an outcome another function which, applied to the evaluation world, verifies that for every world w' which is an element of the worlds epistemically accessible to x , and for every w'' that is a member of the set of worlds where all conversational goals of x are fulfilled, the proposition p is part of the common ground of x . The VERUM operator is thus a conversational operator whose role is to “*assert that the speaker is certain that p should be added to the Common Ground*”¹²².

Focus on the polarity can be signaled by the presence of *really* or by additional stress on the auxiliary (positive polar questions) or on the negation (negative *y/n* questions). Example (49) below shows how the presence of VERUM influences the interpretation of positive *y/n* interrogatives:

(49) **Semantic computation of a positive *y/n* question with VERUM:**

- a. Does John really drink?
- b. LF: [_{CP} Q VERUM [_{IP} John drinks]]
- c. [[CP]] (w_0) =
 $= \lambda q [q = \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w') \\ \lambda w''' . \text{drink}(j, w''') \in \text{CG}_w]] \vee q = \lambda w. \neg \forall w' \in \text{Epi}_x(w) \\ [\forall w'' \in \text{Conv}_x(w') [\lambda w''' . \text{drink}(j, w''') \in \text{CG}_w^n]]$

¹²¹ R&H (2004), p. 627, ex. (43). The index x stands for the speaker or addressee; $\text{Epi}_x(w)$ represents the set of all the worlds epistemically accessible to the participants in the conversation; $\text{Conv}_x(w')$ is the set of worlds where all the conversational goals of x in w' are fulfilled, and $\text{CG}_{w''}$ is the set of propositions that the speaker assumes to be true in w'' .

¹²² R&H (2004), p. 627.

= {‘it is for sure that we should add to CG that John drinks’, ‘it is not for sure that we should add to CG that John drinks’}

- Partition of the logical space:



As illustrated in (48) the role of the VERUM operator is to verify the degree of certainty of the proposition in which it appears. Thus, when VERUM is embedded in a polar interrogative, the interrogative becomes a question about the degree of certainty that the proposition embedded under VERUM should be added to the common ground. Therefore the resulting partition of the logical space is not $p/\neg p$, as the earlier formal semantic analysis of polar questions would predict.

Romero and Han point out three important properties of questions containing a VERUM operator. First, questions containing VERUM “*are elicited when the speaker had a previous belief about that proposition but – given some counterevidence implied by the addressee or given the speaker’s own doubts – the speaker wants to check the certainty of her original belief.*”¹²³ Thus, given the circumstances surrounding the question, an epistemic implicature with polarity opposite of that of the question itself arises. Second, given that the goal of the utterance is not only to assert that p or $\neg p$, but to verify the degree of certainty that $p/\neg p$ of the interlocutor, the resulting partition is different than traditionally assumed. The role of the VERUM operator is to make sure that $p/\neg p$ has to be added to the common ground. Therefore, the resulting partition is FOR SURE-CG_x p/\neg FOR SURE-CG_x p , rather than the $p/\neg p$ one assumed by the Hamblin/Karttunen-style of semantics. Typically, the presence of VERUM in negative questions is signaled by stress on the polarity (negation) or by inversion of the negation. In (50) below it can be observed how it influences the interpretation of the question and how the two properties resulting from the presence of VERUM fall out directly.

(50) Semantic computation of a negative y/n question with VERUM¹²⁴:

- a. Does he NOT drink beer?
- b. LF: [_{CP} Q NOT [_{IP} he drinks beer]]
- c. [[CP]](w₀) =

¹²³ R&H (2004), p. 612.

¹²⁴ R&H, 2004: 632, ex. (62), (63).

$$= \lambda q [q = \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w')]$$

$$\lambda w''' . \neg \text{drink}(h, w''') \in \text{CG}_{w''}]] \vee q = \lambda w. \neg \forall w' \in \text{Epi}_x(w)$$

$$[\forall w'' \in \text{Conv}_x(w') [\lambda w''' . \neg \text{drink}(h, w''') \in \text{CG}_{w''}]]$$

= {‘it is for sure that we should add to CG that he drinks beer’, ‘it is not for sure that we should add to CG that he drinks beer’}

- Partition of the logical space:

FOR SURE-CG- NOT_x p	;	¬ FOR SURE-CG-NOT_x p
---------------------------------------	---	--

Questions with VERUM are uttered when the speaker has previous beliefs with respect to the truth value of the proposition expressed. This results in implicatures when VERUM is present, in contrast to *y/n* questions without focus on the polarity. The epistemic implicatures of both interrogatives in (49) and (50) have an opposite polarity with respect to the polarity of the questions themselves. Thus, the interrogative ‘*Does John really drink?*’ has the epistemic implicature that John doesn’t drink, whereas ‘*Does he NOT drink beer?*’ or ‘*Doesn’t he drink beer?*’ convey the implicature that he drinks beer due to pragmatic reasons.

A third important property of interrogatives with inverted negation is that they do not allow alternative readings in alternative *y/n* questions¹²⁵. This is so due to the presence of focus.

(51) **English polar questions with non-inverted negation:**

Did John not drink coffee or tea?

- a. Yes, John did not drink coffee or tea.

No, he did drink coffee or tea.

(*y/n* reading)

- b. John did not drink coffee.

John did not drink tea.

(alternative reading)

¹²⁵ H&R (2001), p. 262-263, ex. (4) and (5).

(52) **English polar questions with inverted negation:**

Didn't John drink coffee or tea?

a. No, John did not drink coffee or tea.

Right, he did drink coffee or tea.

(*y/n* reading)

b. # John did not drink coffee.

John did not drink tea.

(alternative reading)

H&R (2001) claim that (52) lacks alternative readings because alternative questions involve ellipsis, but focus-marked constituents (in the relevant domain) cannot be deleted. Consequently, if we assume that inverted negation contributes focus-marking on the polarity, the lack of alternative readings in alternative polar questions with inverted negation is a direct outcome of the interaction of polarity (VERUM) focus and the LF syntax of alternative questions. Inverted negation in a *y/n* question contributes an extra focus which cannot be licensed under the alternative reading, neither as contrastive focus, nor as exhaustive focus on the first or both adjuncts. Thus, the only remaining reading for (52) is that of a *y/n* question. Furthermore, Han and Romero point out that all three properties are not limited to English, but are also observed cross-linguistically and provide examples from Bulgarian, Spanish, Greek, and German. In the case of Bulgarian, they compare *li* to *dali*-questions, showing that *dali* questions pattern with non-inverted negation, having two possible readings, whereas *li* questions lack the alternative reading:

(53) **Alternatives in *y/n* questions**¹²⁶

a. *Dali Ivan ne pie kafe ili čaj?*

Dali Ivan Neg drinks coffee or tea

'Does John not drink coffee or tea?'

(*y/n*, alternative Q)

b. *Ne pie li Ivan kafe ili čaj?*

Neg drinks li Ivan coffee or tea

'Doesn't John drink coffee or tea?'

(*y/n* only)

¹²⁶ H&R (2001), p. 263, ex. (8).

Han and Romero take the examples in (53) to prove that *y/n* questions with inverted negation (53b) in Bulgarian pattern with their English counterparts in what refers to their possible readings and respective answers. In example (b) above, the verb, together with the negation, precedes the interrogative particle. Therefore, H&R contrast it to the case of a verb and a negation following the interrogative word (53a). Although the data presented by Han and Romero is accurate, it is limited. Their proposal does not take into account two important facts. First, the comparison contrasts two different types of *y/n* questions. Second, as we have already observed in the beginning of this chapter, each type of question can have focused versions, which should be discussed separately.

In their subsequent work on *y/n* interrogatives with inverted negation, R&H (2004) again establish a parallel between Bulgarian and English questions. In this instance, they examine the possible implicatures of negative polar question. Their examples are presented in (54)¹²⁷.

(54) ***Y/n* questions with non-inverted negation are not biased**

a. *Ne pie li Ivan kafe?*
 Neg drinks li Ivan coffee
 ‘Doesn’t Ivan drink coffee?’

[possible implicature]

b. *Dali Ivan ne pie kafe?*
Dali Ivan Neg drinks coffee
 ‘Does Ivan not drink coffee?’

[unbiased question]

As was the case in the previous example, R&H, lacking an important piece of data, compare two different types of questions and not within the same group of questions with and without inversion in the negation. Again, the examples and their proposed interpretations are accurate; however, as I demonstrate in section 7, both types of questions can have epistemic implicatures.

In summary, Romero and Han (2004), focusing mainly on English but also providing examples from other languages (Spanish, Bulgarian, German, Modern Greek, and Korean), assume that in all languages the availability of an epistemic implicature and the absence of

¹²⁷ R&H (2004), p. 614-615, ex. (16).

alternative readings in *y/n* questions always depend on focus on the polarity. Such a focus on the polarity can be signaled by the presence of adverbials such as *really* in positive polar questions, or by heavily stressing the auxiliary. In negative *y/n* questions, focus on the polarity is instantiated by heavy stress on negation or by inverted negation. In all cases, focus on the polarity triggers the presence of a VERUM operator: a conversational operator which aims to make sure that the speaker is certain that an utterance *p* should be added to the Common Ground. In what refers to Bulgarian, given that the *li*-questions illustrated in the above examples are biased and cannot have alternative readings, R&H take them to be equivalent to English polar questions with inverted negation. *Dali*-questions, on the other hand, are assumed to be parallel to English polar interrogatives with non-inverted negation.

In section 7.1, I show that *dali*-questions parallel English *y/n* questions in exhibiting inverted negation as a trigger of focus on the polarity. In contrast to English polar interrogatives, I show that *li*-questions always involve focus. However, the VERUM operator in *li*-questions is present only when *li* is immediately preceded by a negated verb or by a non-clitic auxiliary.

7. A new proposal for the semantic analysis of Bulgarian polar questions

7.1. Bulgarian data revisited

7.1.1. *Dali*-questions pattern with English *y/n* interrogatives

R&H's proposals correctly account for the difference between neutral *dali*-questions and *li*-interrogatives. R&H, however, do not offer a detailed analysis for Bulgarian *y/n* questions, as they consider only a limited set of data, which leaves several problems unexplained. First, as already pointed out, the comparison in (53) and (54) is established on the basis of two separate types of *y/n* questions: *li*-questions with focus on the VP (53b) and (54a) vs. neutral *dali*-questions (53a) and (54b). Second, given that *dali*-questions can also be focused, they are expected to exhibit lack of alternative readings and possible implicatures with polarity opposite to that of the question in the relevant cases. Thus, in order to show that it is inverted

negation (VERUM focus) that triggers the lack of alternative readings, we need to study the cases with inverted and non-inverted negation in both types of questions separately¹²⁸.

(55) **Dali-questions:**

a. Dali Ivan **ne** *pie* kafe ili čaj?
Dali Ivan Neg drink._{3p.sg.} coffee or tea

‘Does Ivan not drink coffee or tea?’

(Non-biased interpretation; this question cannot be interpreted as implying that the speaker believes that Ivan drinks coffee or tea)

A1: *Ne, Ivan ne pie kafe ili čaj.*

No, Ivan Neg drinks coffee or tea

‘No, Ivan does not drink coffee or tea.’

(y/n question reading)

A2: *Ne, Ivan ne pie kafe.*

No Ivan Neg drinks coffee

‘No, Ivan does not drink coffee.’

(alt. question reading)

b. Dali **NE PIE** Ivan kafe ili čaj?

Dali Neg drink._{3p.sg.} Ivan coffee or tea

‘Doesn’t Ivan drink coffee or tea?’

(Biased interpretation is possible; the question can convey the implicature that the speaker believes that Ivan drinks coffee or tea)

B1: *Ne, Ivan ne pie kafe ili čaj.*

No, Ivan Neg drinks coffee or tea

‘No, Ivan does not drink coffee or tea.’

(y/n question reading)

B2: # *Ne, Ivan ne pie kafe.*

No Ivan Neg drinks coffee

‘No, Ivan does not drink coffee.’

(alt. question reading)

¹²⁸ For convenience, negation in the examples below is in bold; interrogative words are underlined.

The examples in (55) illustrate the fact that *dali*-questions parallel English polar questions with (55b) and without (55a) inverted negation. As mentioned earlier, in *dali*-questions the first element following the interrogative marker is focused when the declarative word order is altered. In (55a) the word order of the interrogative is as in a declarative sentence (SVO) and the interpretation is therefore neutral. The interrogative can be read as both: *y/n* question or alternative question. In addition, this neutral interrogative does not have a biased interpretation, i.e. it lacks the possibility of an implicature of the type: *Ivan drinks coffee or tea*. In contrast, (55b) is an instance of focus on the verb complex: the verb is preposed¹²⁹: it follows the interrogative word *dali*, thus altering the word order to VSO. As a result, the reading is equivalent to that of an English polar question with inverted negation. The interrogative in (55b) can have only a *y/n* question reading. In addition, it can be biased, i.e. it can have the implicature: *Ivan drinks coffee or tea*. Thus, similarly to English polar interrogatives, questions with *dali* may or may not exhibit alternative readings, depending on the absence/presence of focus on the polarity¹³⁰.

7.1.2. *Li*-questions always involve focus and lack alternative readings

In what follows, I compare *dali*-questions presented in (55) to the other type of polar interrogative in Bulgarian: *li*-questions, illustrated in (56).

¹²⁹ Sentential negation is a proclitic form in Bulgarian and has to be adjoined to the verb; hence focus on the verb or focus on the negation will always involve focus on the negation+ verb complex. Focus on such a complex is ambiguous between narrow focus on the verb and focus on the negation (polarity focus). The ambiguity is reflected in (79) in section 7.3.3. For more details on negation in Bulgarian see Rudin et al. (1999). For details with regards to the clause structure, morphology, focus and a general comparison between languages in the Balkans, see Bošković (1997, 1998, 2002, 2004a, b, c, 2009), Franks (1995, 1998, 2005a), Rivero (1993, 1994, 2005), Rivero and Ralli (2001), Rudin (1993), Surani (2006), Tomić (2004a, 2004b), among others.

¹³⁰ Note that in the case of Bulgarian, focus on the polarity (stress on negation) would have to include the verb, as sentential negation is a proclitic to the verb.

(56) **Li-questions:**

- a. *Ne pie li Ivan kafe ili čaj?*
Neg drink._{3p.sg.} li Ivan coffee or tea
'Doesn't Ivan drink coffee or tea?'

(Biased interpretation is possible; the question can imply that the speaker believes that Ivan drinks coffee or tea)

- A1: *Ne, Ivan ne pie kafe ili čaj.*
No, Ivan Neg drinks coffee or tea
'No, Ivan does not drink coffee or tea.' **(y/n question reading)**

- A2: # *Ne, Ivan ne pie kafe.*
No Ivan Neg drinks coffee
'No, Ivan does not drink coffee.' **(alt. question reading)**

- b. *Ivan li ne pie kafe ili čaj?*
Ivan li Neg drink._{3p.sg.} coffee or tea
'Is it Ivan who does not drink coffee or tea?'

(Not biased interpretation; the speaker does not imply that s/he believes that Ivan drinks coffee or tea)

- B1: *Da, Ivan ne pie kafe ili čaj.*
Yes, Ivan Neg drinks coffee or tea
'Yes, Ivan is the one who does not drink coffee or tea.' **(y/n question reading)**

- B2: # *Da, Ivan ne pie kafe.*
Yes Ivan Neg drinks coffee
'Yes, Ivan is the one who does not drink coffee.' **(alt. question reading)**

c. *Ivan ne pie li kafe ili čaj?*
 Ivan Neg drink._{3p.sg.} li coffee or tea
 ‘Doesn’t Ivan drink coffee or tea?’

(Biased interpretation is possible; the speaker can convey that s/he believes that Ivan drinks coffee or tea.)

C1: *Ne, Ivan ne pie kafe ili čaj.*
 No, Ivan Neg drinks coffee or tea
 ‘No, Ivan does not drink coffee or tea.’ **(y/n question reading)**

C2: # *Ne, Ivan ne pie kafe.*
 No Ivan Neg drinks coffee
 ‘No, Ivan does not drink coffee.’ **(alt. question reading)**

d. *Ivan ne pie kafe ili čaj li?*
 Ivan Neg drink._{3p.sg.} coffee or tea li
 ‘Is it the case that Ivan does not drink coffee or tea?’

(Non biased interpretation; the speaker does not mean that s/he believes that Ivan drinks coffee or tea.)

D1: *Da, Ivan ne pie kafe ili čaj.*
 Yes, Ivan Neg drinks coffee or tea
 ‘No, Ivan does not drink coffee or tea.’ **(y/n question reading)**

D2: # *Da, Ivan ne pie kafe.*
 Yes Ivan Neg drinks coffee
 ‘No, Ivan does not drink coffee.’ **(alt. question reading)**

The interrogatives in the above examples illustrate different possible positions of the interrogative particle *li* in a *y/n* question. As can be seen from the translations, the examples in (56a) and (56c) are comparable to English polar questions with inverted negation. Similarly to English *y/n* questions with inverted negation the interpretation of both is ‘*Is it really true that*

Ivan does not drink tea or coffee?’ - a question whose goal is to ensure the addition of the fact that Ivan does not drink coffee or tea to the CG (despite our previous beliefs that he likes tea or coffee). The only difference between (56a) and (56c) is that in the latter, Ivan is the discourse topic. Thus, the interpretation is equivalent to: ‘*Speaking of Ivan, is it really true that he does not drink tea or coffee?*’ The question in (56b), however, although formed with the interrogative particle *li*, is not equivalent to a question with focus on the polarity. As the translation points out, its goal is to make sure that the person who does not drink coffee or tea is Ivan, not someone else. In that case, focus is still present, but it is placed on the subject of the sentence rather than on the polarity, but. Again, the reading is only that of a *y/n* question, however, the interpretation is not biased (unless said with irony as an echo-question). Finally, the sentence in (56d) where the interrogative particle *li* is placed at the end of the clause receives neutral interpretation. Nonetheless, it still lacks the alternative reading.

To summarize, the data presented in (56) above show that in contrast to *dali*-questions, even when negation is not inverted, *li*-questions do not receive an alternative question reading (56b). The fact that (56d) only yields a *y/n* reading suggests that even *li*-questions with ‘neutral’ interpretation contain focus. The possibility of interpreting them as neutral is due to the fact that focus is broad. Interestingly, *li*-questions have biased interpretations in all cases when the negation + V complex is the focused constituent. However, if the whole clause is focused, although the negation + verb complex precedes the interrogative word and is part of the focused constituent, the interpretation is not biased. This is so because in the case where the whole clause is focused, there is no narrow focus, hence, there is no focus on the polarity.

Two conclusions can be drawn from these examples. The first one is related to the syntactic structure of polar questions in Bulgarian and the position of focus in particular. The available interpretations provide evidence in favour of the proposed syntactic structure which was also supported by the results from the two experiments with multiple *wh*-interrogatives. Given that *dali* is an interrogative complementizer, we can deduce that focus does not have to be in C^0 in Bulgarian, but rather that it has an independent syntactic position below C^0 where the focused element in *dali*-questions is located. If this element in FocP involves sentential negation, it contributes VERUM focus on the polarity, as in English. The alternative question reading is blocked since focused constituents cannot be deleted, and the question can be interpreted as biased due to the presence of VERUM. The second conclusion concerns *li* questions in Bulgarian. The lack of an alternative reading (independently of the position of

negation) suggests that focus is always present in this type of interrogatives. However, *li*-questions are biased only when the verb complex immediately precedes *li*. This suggests that the effect of VERUM is not simply a result of the presence of focus, but it is an outcome of the negation (polarity) being focused. The idea that *li*-questions always involve focus is additionally supported by the observation that even positive *y/n* alternative *li*-questions lack alternative readings, as illustrated in (57):

(57) *Ivan pie li kafe ili čaj?*
 Ivan drinks li coffee or tea
 ‘Is Ivan drinking coffee or tea?’

(only *yes/no* reading; not biased interpretation)

A1: *Ne, Ivan ne pie kafe ili čaj.*
 No, Ivan Neg drinks coffee or tea
 ‘No, Ivan does not drink coffee or tea.’

(*y/n* question reading)

A2: # *Ne, Ivan ne pie kafe.*
 No Ivan Neg drinks coffee
 ‘No, Ivan does not drink coffee.’

(alt. question reading)

Which of the two readings -alternative or *y/n* question-was preferred in positive alternative questions containing *li* was tested with a specific type of fillers used in experiment 2. This fillers’ set consisted of a short dialogue where the question was a positive alternative one and the answer was either a declarative corresponding to the alternative reading or a declarative corresponding to the *y/n* reading of the interrogative. Participants were asked to rate the answer in this case, rather than the question. An example is provided in (58):

(58) **Fillers experiment 2: alternative *y/n* question with alternative or *y/n* answer:**

A: *Žaden li si? Iskaš li sok ili voda?*
Thirsty li be.2p.sg.pres. Want.2p.sg.pres. li juice or water
'Are you thirsty? Do you want some water or juice?'

B₁: *Da, iskam sok ili voda.* (yes/no answer)
Yes want.1p.sg.pres. juice or water
'Yes, I want juice or water.'

B₂: *Da, iskam sok.* (alternative answer)
Yes want.1p.sg.pres. juice
'Yes, I want juice.'

Participants had to rate the answers given in B₁ or B₂. The average ratings were 3.84 (out of 4 possible points) for the *y/n* answer (B₁) and 2.72 for the alternative answer (B₂) respectively. A paired samples t-test conducted to look into whether the difference in the grading was significant revealed that the preference for the *y/n* reading of the alternative question was highly significant ($t(85) = -8.985, p < .001$). Despite the fact that most participants noted that an answer of the type of B₁ is unclear with respect to what B wants, participants still preferred a *y/n* reading of the alternative question with *li*. This fact confirms the hypothesis that, not only negative polar interrogatives, but all polar interrogatives formed with *li* contain focus, which prevents them from getting an alternative reading.

The presence of focus in *li*-questions was further supported by another filler type used in experiment 2. Again, it contained a short dialogue. It consisted of an alternative *y/n* interrogative and an answer containing only *yes* or *no*. Participants were asked to rate the answer and also to select one of four examples to show what such an answer indicated. An illustration is provided in (59):

(59) **Fillers experiment 2: alternative *y/n* question with a *y/n* answer and its meaning:**

A: *Kakvo da ti prigotvja? Običaš li pica ili spageti?*
What to you.Dat prepare.1p.sg.sub. Like.2p.sg.pres. li pizza or spaghetti
'What shall I make you? Do you like pizza or spaghetti?'

B₁: *Ne.*
'No.'

Possible meanings:

- a) I don't like spaghetti.
- b) I don't like pizza.
- c) I don't like either.
- d) I like both.

B₂: *Da.*
'Yes.'

Possible meanings:

- a) I like spaghetti.
- b) I like pizza.
- c) I like both.
- d) I don't like either.

The ratings for the negative answers (B₁) were 3.11 points and for the positive ones (B₂) were 2.96, respectively. A paired samples t- test showed that the difference between the two replies was not significant ($t(71) = -1.352, p = .181$), which was expected, given that both types of answers were unclear in terms of what the speaker in A wants to know. What is more, the meanings provided forced a reading of the answer where it provides an instance of an alternative reading of the *y/n* question in A. In a total of 82% of the cases, participants commented that the meaning conveyed by the answer in B is most likely the one presented in (c). Almost all participants pointed out the fact that the answer in B is unclear for A, and that B should add what s/he wants to be prepared for her/him. Again, the fact that positive and negative answers did not differ significantly, and especially the fact that participants interpreted the alternative question in A as a *y/n* question in 82% of the cases, support the idea that positive polar questions also present an instance of focus. In this case, however, as there is no biased interpretation possible, focus is not instantiated by the VERUM operator but is only reflected in the absence of an alternative reading.

H&R (2001) point out that positive *y/n* questions in English with focus on the polarity (*DOES John drink coffee or tea?*) and negative *y/n* questions with focused non-inverted negation (*Does John NOT drink coffee or tea?*) lack alternative readings similarly to *y/n* questions with inverted negation. Given that *li* has been claimed to associate with focused elements, I conclude that (57) (lit: *Ivan drinks li coffee or tea?*) supports the idea that the lack

of alternative readings in Bulgarian *li*-questions is not related to the position of negation, but rather to the presence of focus, on the one hand, and to the hypothesis that focus is always present in Bulgarian *li*-questions, on the other. I attribute the lack of biased interpretation in sentences like (57) to the assumption that VERUM is present only in two cases. First, focus on the polarity is observed if there is narrow focus on the negation. As a result, since negation in Bulgarian is a proclitic to the verb, it can easily be mistaken for narrow focus on the V(P). Second, similarly to English, focus on the polarity should be present in Bulgarian when there is an overt non-clitic auxiliary which can precede the interrogative particle *li* and receive narrow focus¹³¹.

7.1.3. Polar questions with alternative reading

To obtain alternative readings, Bulgarian has the recourse of either a *dali*-question with non-inverted negation (60) or of a *y/n question* without an interrogative marker (60b, c, d)¹³²:

(60) Questions with alternative readings

- a. *Dali Ivan ne pie kafe ili čaj?*
Dali Ivan Neg drink._{3p.sg.} coffee or tea
 ‘Is Ivan not drinking coffee or tea?’ (y/n, alt-reading)

¹³¹ As Bulgarian is among the languages where V-to-T movement is observed, positive *li*-questions with verbs in simple tenses cannot exhibit VERUM focus, as there is no such auxiliary as ‘dummy *do*’ in English. In addition, most auxiliary forms in Bulgarian are clitics, which additionally complicates the picture. However, there are certain auxiliaries, such as *beše*, ‘was’ and *bil*, ‘was’, non-evidential, that can bear stress and are used to form the past perfect tenses. These auxiliaries can ‘host’ the interrogative particle *li* and if heavily stressed sentences of this type can have biased interpretation, similarly to positive *y/n* questions in English with heavy stress on the auxiliary.

Ex. *BEŠE li došal Ivan na sreštata?*
 Aux. *li come_{-past participle} Ivan to meeting-the*
 ‘HAD Ivan come to the meeting?’

(Biased interpretation possible, conveying the meaning that the speaker believed that Ivan hadn’t come to the meeting.)

¹³² The questions in (60) can also be formed by fronting ‘*coffee or tea*’ followed by the verb and then the subject. The examples above aimed to preserve the declarative word order and also to show that the availability of the alternative reading is not altered when the verb/negation is preposed (60).

- b. *Ivan ne pie kafe ili čaj?*
 Ivan Neg drink._{3p.sg.} coffee or tea
 ‘Is Ivan not drinking coffee or tea?’ **(only alt-reading,
 the speaker believes that Ivan does not drink one of the two drinks)**
- c. *Ne pie kafe ili čaj Ivan?*
 Neg drink._{3p.sg.} coffee or tea Ivan
 ‘Is Ivan not drinking coffee or tea?’ **(only alt-reading,
 the speaker believes that Ivan does not drink one of the two drinks)**
- d. *Ivan pie kafe ili čaj?*
 Ivan drink._{3p.sg.} coffee or tea
 ‘What is Ivan drinking: coffee or tea?’ **(only alt-reading,
 the speaker believes that Ivan does drink one of the two drinks)**

The alternative questions without interrogative particles can receive only alternative readings, independently of the position of negation (60b, c, d)¹³³. This shows that the presence of the interrogative particle *li* is what blocks the alternative reading. In addition, none of the interrogatives in (60) has a biased interpretation with polarity opposite to that of the question. In fact, the examples in (60b, c, d) can imply a proposition with the same polarity as that of the interrogative¹³⁴. Therefore, negation preposing (preposing the negation + verb complex) does not automatically involve focus on the polarity (hence presence of the VERUM operator) in Bulgarian. Moreover, positive *y/n* questions with *li* cannot have alternative readings, similarly to their negative counterparts (57). This fact suggests that it is focus in general, and not only VERUM, which triggers the lack of alternative readings in Bulgarian. In addition, negation

¹³³ An intuitive explanation of this phenomenon could be that the default *y/n* question in Bulgarian is done using the interrogative particle *li* or the complementizer *dali*. Thus, one could imagine that questions without interrogative particles have retained only the meaning that cannot be expressed with the questions with *li* and *dali*. However, this is just an intuitive explanation and further investigation of the problem is required to account for the lack of *y/n* readings in polar alternative questions without interrogative markers.

¹³⁴ A possibility is that this is so due to the presence of the two alternatives. The perceived meaning of the question is which of the two drinks Ivan does or does not drink. In such circumstances, it is easy to assume that the speaker believes that Ivan drinks or does not drink one of the two. However, I am aware that this touches on more complicated problems, such as whether questions involve presuppositions in general and how exactly Bulgarian polar questions without interrogative particles differ from their counterparts with *li* and *dali*. I would like to leave these interesting problems as topics for further research.

preposing on its own does not trigger focus on the polarity either. It can do so only in combination with narrow focus on negation. As deduced from the different interpretations of the sentences above, focus is always present in *li*-questions, and it is manifested via additional stress or via word order change in the case of *dali*-questions. VERUM, on the other hand, is present only when there is a narrow focus on the negation (which results in heavy stress on the verbal complex or on a non-clitic auxiliary).

I conclude, therefore, that Bulgarian questions provide further evidence that languages can use lexical elements, apart from movement, to exhibit focus. Similarly to English, negation inversion with narrow focus on the negation is the tool to trigger focus on the polarity in negative polar questions in Bulgarian.

7.1.4. VERUM focus in positive *y/n* questions

Due to the nature of lexical verbs (V-to-T movement in simple tenses and the fact that auxiliaries are clitic-like) Bulgarian does not at first sight seem to exhibit the same type of focus on the polarity in positive *y/n* questions, as they do not have biased interpretation. An intuitive explanation of this fact is that auxiliaries in this language are typically clitics; hence they cannot stand on their own and be independently focused. However, this does not apply to some past (*beše* -‘was’) or conditional (*šteše* -‘would’) auxiliaries that are not clitics. Those cases pattern with English in that there can be narrow focus on the auxiliary, in which case a biased interpretation is possible.

(61) VERUM in positive *y/n* questions

- a) *DOJDE li Ivan na sreštata?*
 Came_{e.3p.sg.aor} li Ivan to meeting-the
 ‘Did Ivan COME to the meeting?’ **(Non-biased interpretation;
 the speaker cannot imply that s/he believed that Ivan did not come to the meeting.)**
- b) *BEŠE li došal Ivan na sreštata?*
 Aux. li come_{e.p.p.} Ivan to meeting-the
 ‘HAD Ivan come to the meeting?’ **(Biased interpretation possible,
 conveying the meaning that the speaker believed that Ivan didn’t come to the meeting.)**

The paradigm in (61) shows two important facts. First, it demonstrates that Bulgarian patterns with English in that positive *y/n* questions can also contain VERUM, when there is heavy stress on the auxiliary (61b). Second, it illustrates that narrow focus on the lexical verb is not enough condition for the presence of VERUM (61a). A functional element (e.g. negation, auxiliary verb) must immediately precede *li* and receive narrow focus in order for VERUM to be present. This fact further proves the hypothesis that it is the negation (and not the lexical verb) that is focused in negative *li*-questions. Although negation is a proclitic to the verb and forms a phonological complex with the verb, it can bear semantic focus, which results in the possibility of having a biased interpretation of the *y/n* question. If this was an outcome of narrow focus on the lexical verb, a biased interpretation reading should be possible in the cases like (61a), which is not the case.

In addition, Bulgarian is a pro-drop language. Thus, when there is no overt subject present, preposing of the verb is not evident: the word order is VO, whether the verb is focused or not. Lastly, we have seen that positive *y/n* questions where the lexical verb is the only element preceding the interrogative particle *li*, can be interpreted as neutral, as focus features can percolate to the top of the phrase. As a result, VP-*li* questions lead to ambiguity between exhibiting a narrow or broad focus. However, as example (56d) showed, in the case of broad focus, focus on the polarity is not a possible interpretation, as there is no narrow focus on any functional element. Consequently, VERUM in Bulgarian is expected to be observed only in negative contexts or with auxiliaries that can be stressed¹³⁵. What this means

¹³⁵ In fact, focus on the polarity is also possible with focusing adverbs like *really*. In such a case, the interrogative particle *li* is adjoined to *really* in *li*-questions (i). In *dali*-questions, *really* is the element immediately following the interrogative word (ii):

i) *Naistina li Ivan pie kafe?*
 Really Q Ivan drinks coffee
 ‘Is it really true that Ivan drinks coffee?’/‘Does Ivan really drink coffee?’

ii) *Dali naistina Ivan pie kafe?*
 Whether really Ivan drinks coffee
 ‘Is it true that Ivan drinks coffee?’/‘Does Ivan really drink coffee?’

iii) *Ivan li naistina pie kafe?*
 Ivan Q really drinks coffee
 ‘Is it Ivan who really drinks coffee?’

(Biased interpretation is not possible)

The examples above show that Bulgarian can recur to lexical tools (as can English) in order to express focus on the polarity in positive *y/n* questions. Such a lexical element must be in the space where elements with narrow focus are positioned, as otherwise, the possibility of having a biased interpretation is lost (iii).

is that a functional element such as negation or an auxiliary is focused and therefore preposed. A particularity of Bulgarian is that negation preposing triggers the preposing of the verb with it, as sentential negation is a proclitic to the verb. In that sense, negation preposing does not automatically involve the presence of the VERUM operator, as it can be the result of narrow focus on the verb or of narrow focus on the negation. In the first case, narrow focus on the verb should result in the availability of a list of alternative propositions (following Rooth, 1995) which is contextually dependent. In the second case, narrow focus on the negation results in the presence of VERUM and the possibility of having a biased interpretation of the interrogative.

In summary, positive VP-*li* questions are two-way ambiguous, as focus on the verb can be either narrow, or interpreted as broad focus (e.g. focus on the whole TP). In contrast, negative VP-*li* questions turn out to be three-way ambiguous. First, focus on the negative VP can be interpreted as either broad (in which case the question is understood as neutral), or narrow (in which case two possible interpretations arise). Narrow focus on the negation + verb complex can be the result of a narrow focus on the negation (hence, presence of VERUM), or the outcome of narrow focus on the verb (in which case, a contextually-dependent set of alternatives is made available). I will return to this problem in section 7.4, where the semantic denotations of *li*-questions with focus different from focus on the polarity are discussed.

7.1.5. The verb is different from the rest of the clause

To this point, I have discussed *li* as an exclusively interrogative particle. However, there is another, less frequent, conditional use of this particle which has almost not been discussed in the syntactic and semantic literature on this topic. The clitic *li* can also appear in conditional

In general, Bulgarian lacks the ability of expressing focus by heavily stressing the clitic auxiliaries. However, in some western dialects, auxiliaries such as *e* (is) or *šte* (will) are used in front of the interrogative particle *li*. (Stojko Stojkov, 2002, also notes that some western and southeastern dialects allow the otherwise clitic auxiliary to appear in sentence initial position.)

- iv) *E li došal Ivan na sreštata?*
 Aux. li come_{·past participle} Ivan to meeting-the
 ‘Has Ivan come to the meeting?’

In this last case, as the auxiliary has clearly received narrow focus, a biased interpretation is possible; hence, VERUM is present.

sentences, similarly to the English conditional complementizer *if*¹³⁶. It can appear in real conditionals but not in counterfactuals (62a-b). In conditionals, *li* introduces the protasis of the conditional. As in interrogative sentences, *li* is a clitic, thus cannot appear in clause-initial position like English *if*. Interestingly, *li* can be preceded by a verb, but never by an argument of the predicate (62c-d). Compare the examples in (62) below.

(62) **Use of *li* in conditionals**

- a) *Imam li pari xodja na restorant.*
 Have._{1p.sg.pres.} li money go_{1p.sg.pres.} to restaurant
 ‘If I have money, I go to a restaurant.’/‘When I have money, I go to a restaurant.’
- b) **Imax li pari bix otišal na restorant.*
 Had._{1p.sg.past} li money would_{1p.sg.} go_{p.p.} to restaurant
 ‘If I had money, I would go to a restaurant.’
- c) *Dojde li Ivan šte stane veselo.*
 Come._{3p.sg.subj.} li Ivan will become happy
 ‘If Ivan comes, it will be nicer.’
- d) **Ivan li dojde šte stane veselo.*
 Ivan li come._{3p.sg.subj.} will become._{3p.sg.fut.} happy

The examples in (62) above provide us with two pieces of critical information. First, verbs and their arguments do not seem to have equal status with respect to *li*. Had it been so, either element should have been able to appear before the clitic. Both the verb and the NP can precede the clitic *li*, as we have seen in the previous sections (1, 2, 7.1). Thus, there is no syntactic reason for which either of the two cannot be fronted. The second piece of information comes from the impossibility of *li* appearing in counterfactuals. The combination verb + *li* seems to be possible only if the speaker is not sure of the event expressed by the protasis, as in (62a, c), i.e. there is a possibility of the event happening or not. However, if the

¹³⁶ Note that Bulgarian has another, purely conditional form ‘*ako*’ (if) that is generally used.

speaker is sure that such an event cannot take place (62b), the combination of verb + *li* becomes unacceptable.

Counterfactuals, and in particular the past tense morphology in counterfactual conditionals, has been long shown to not necessarily imply that the event expressed in the antecedent is false. The example in (63) below belongs to Anderson (1951).

(63) **Counterfactuals do not necessarily imply that the antecedent is false**

If Jones had taken arsenic, he would have shown just exactly those symptoms which he does in fact show.

Anderson's example above illustrates the fact that the assumption that the antecedent is false in counterfactual conditionals can be cancelled. The same is valid for conditionals with *if* (*ako*) in Bulgarian, but not for conditionals formed with *li*. Consider example (64) below.

(64) **Counterfactual conditionals in Bulgarian.**

a) *Ako Ivan beše pil arsenik, šteše da ima saštite*
 If Ivan Aux. taken arsenic would Sub. have.3p.sg.subj same-the
simptomi kato tezi, koito ima v momenta.
 symptoms like these that have in moment

'If Ivan had taken arsenic, he would have the same symptoms as the ones he has right now.'

b) **Beše li Ivan pil arsenik, šteše da ima saštite*
 Aux. li Ivan taken arsenic would Sub. have.3p.sg.subj same-the
simptomi kato tezi, koito ima v momenta.
 symptoms like these that have in moment

The example above illustrates that conditionals with *ako* (if) in Bulgarian behave exactly like their English counterparts (64a). However, this is not the case with conditionals with *li* (64b). What this means is that the combination of the past morphology and *li* involves certain presupposition regarding the event in question. Since the assumption that the antecedent of the conditional is false cannot be cancelled, it seems that the presupposition is that the event did

not take place. It has not been noted in the literature for *li* to be unable to combine with past tense morphology.¹³⁷ Thus, there is no morphological reason for *li* not to be able to appear in (64b) above. I conclude, therefore, that it is the assumption of the falsity of the antecedent what is not allowed when conditionals are formed with *li*.

Given the sharp contrast between the behaviour of the verb and that of its arguments in conditionals with *li*, and the fact that these conditionals involve presuppositions with regards to the antecedent, I propose that there are two different types of focus involved. I assume that the contrast observed in (62) between verbs and arguments stems from a more fundamental distinction between informational and contrastive focus. Following Kratzer (2004), I take information focus to be related to the truth conditions of a sentence and to the newness of information, whereas contrastive focus affects the content of the proposition *by triggering presuppositions or conversational implicatures*¹³⁸. In other words, information focus is not able to appear with already given or known (presupposed) information. In that line of thought, conditionals with *li* clearly contain informational (but not contrastive!) focus, as a realis condition cannot imply whether the event will take place or not. The fact that arguments of the verb cannot appear in such constructions suggests that focus in the case of an NP + *li* combination is contrastive rather than informational. I assume, therefore, that the reason for which *li* cannot appear in counterfactuals and cannot follow arguments of the predicate in conditionals is the same: those cases require knowledge or at least a presupposition of whether the event can take place or not. It seems to be the case that in counterfactuals with *li* the speaker knows that the proposition expressed by the protasis cannot take place, thus there is a premise that the antecedent is false. The same is valid in the case when *li* follows an NP, as in (62d). In this case, the speaker has the presupposition that somebody will come (not sure whether this person will be Ivan or someone else). As a result, such a combination becomes unacceptable. There is no other syntactic, morphological or phonological reason that could otherwise explain the unacceptability of (62b and d). Both combinations are perfectly acceptable in interrogatives and the only difference between (62a and b) is the speaker's knowledge/presupposition of whether the event can happen or not. Therefore, as *li* is always adjoined to the focused element in the clause, the only possible explanation for the difference

¹³⁷ Recall, for example, positive *li*-questions with VERUM, where *li* adjoins to the auxiliary *beše*, 'was'.

¹³⁸ Kratzer (2004), p. 133.

between (62a and b) and between (62c and d) is to assume that they represent two different types of foci.

To summarize, I take the contrast in conditionals with *li* between verb + *li* and NP + *li* to suggest that these two cases are two separate instances of focus. When the verb precedes the clitic, it is focused. Focus in this case is informational, and gives rise to a set of alternatives as described by Rooth (1995). In the case of NP + *li*, the noun phrase is contrastively focused. Contrastive focus evokes a set of alternatives as information focus does. In addition, it implies the presupposition that the event expressed in the proposition will or has taken place.

In the following sections, 7.2, 7.3 and 7.4 I propose a formal semantic analysis of different types of polar questions in Bulgarian, inspired by the analysis suggested by H&R (2001) and R&H (2004). I make the following assumptions based on the empirical observations discussed above:

- (i) *Dali* and *li*-questions can have different interpretations;
- (ii) The interpretation of *li*-questions is always focus-dependent; and
- (iii) Two main types of *li*-interrogatives must be distinguished: VP-*li* and XP-*li*.

In addition, I follow a long-standing tradition in semantics literature in assuming that a distinction must be made between information and contrastive focus. I follow Rooth (1992, 1995) in that information focus evokes sets of alternatives. I also follow Kratzer (2004) in assuming that contrastive focus is related to presuppositions and implicatures related to the proposition containing such a focus.

I propose the following line of analysis. First, negative polar questions with narrow focus on the negation contain a VERUM operator (focus on the polarity). Second, polar questions with narrow focus on the verb create a context-dependent set of alternative propositions as a result of the presence of narrow focus of the verb. Third, focused *y/n* questions with broad focus on the verb result in a neutral interpretation, as the whole proposition is interpreted as focused. Last, based on the different behaviour of the verb and its arguments exhibited in conditional sentences formed with *li*, I assume that the XP phrase in

XP-*li* questions (when it is not the VP) is contrastively focused¹³⁹. Similarly to information focus, contrastive focus creates a set of alternatives, and in addition it involves a presupposition that one of the propositions – a member of the set of alternatives evoked by focus – is true. In all cases, *li* combines with the focused structure in a fashion similar to English *only*¹⁴⁰, whereas *dali* combines with the proposition similarly to the silent question operator Q. In other words, I propose that two types of question operators are available in Bulgarian. In neutral *dali*-interrogatives, *dali* has the semantics of a question operator equivalent to the silent Q in English. It combines with the proposition expressed by the interrogative and gives as a result a set of propositions corresponding to the positive or negative version of the proposition itself. In focused *dali*-questions, *dali* combines with the focused semantic value of the interrogative via point-wise function argument application, i.e. it combines with each and every one of the alternatives evoked by focus, one at a time¹⁴¹. *Li*-interrogatives, on their end, make use of the second type of question operator in Bulgarian, a focus-sensitive question operator (I will label such an operator Q_F) which can be used only in questions containing focus. This second type of operator combines with a set of propositions corresponding to a contextual restriction on the focus value of the embedded clause¹⁴². The result of both types of focused questions is a partition of the logical space different from the one obtained by the Q operator in neutral questions. Within this line of analysis, *li* can only be of the Q_F type, whereas *dali* is Q and combines with the embedded clause either via function argument application or via point-wise function argument application, depending on the absence/presence of focus in the interrogative formed with it.

¹³⁹ Bošković (2001) assumes that when *li* marks focus, the element to which it is adjoined is contrastively focused. In the same spirit, Franks (2005c) proposes that there are two types of *li*: interrogative and focal. In his view, *li* is used to mark contrastive focus when it splits an NP or other phrase or when it follows *wh*-words.

¹⁴⁰ For details see section 4 in this chapter where the most relevant pieces of Rooth's (1995) theory of focus are presented.

¹⁴¹ See Rooth (1992) and Kratzer and Shimoyama (2002) for other uses of this type of approach.

¹⁴² See section 4 above for Rooth's (1995) theory on the calculation of the focus value of a clause.

**7.2. The semantics of polar questions with neutral reading
(*Dali*-questions and *li*-questions with broad focus on the V)**

7.2.1. Neutral *dali*-questions

As demonstrated in section 7.1, neutral *dali*-questions pattern with English polar interrogatives. Thus, the semantic interpretation of these interrogatives can be obtained easily, using R&H's (2004) semantic derivation for English neutral polar questions. Given that *dali* is an overt interrogative word and contributes the interrogative meaning to the clause, I assume that *dali* acts as an interrogative operator. I propose, therefore, that *dali* has the denotation of the silent English interrogative operator Q, shown in (22). As a consequence, the semantic denotation of a *dali*-question in Bulgarian will contain the overt interrogative operator as a function that takes scope over a declarative clause. The denotation of this overt operator is presented in (65).

(65) **Denotation of *dali*:**

$$[[dali]] = \lambda p_{\langle s,t \rangle} \lambda w_s \lambda q_{\langle s,t \rangle} [q = p \vee q = \neg p]$$

Dali is an overt question operator, similarly to the English silent question operator Q. It is a function which takes as an argument a proposition *p* and maps it to a property of worlds *w*. Once the world argument is saturated, the result is a property true of propositions that are either *p* or $\neg p$.

The semantic denotation of a neutral *y/n* question with *dali* will be done in the following way.

(66) **Semantic interpretation of positive neutral *dali*-interrogatives:**

Dali *Filip* *pee?*
Whether *Fillip* *sings*
'Is *Fillip* singing?'

a. *Dali* *Fillip* *sings?*

b. LF: [_{CP} *dali* [*Fillip* *sings*]]

$$([[dali]] = [[Q]])$$

c. [[**Fillip** **sings**]] = λw .sing (*f*, *w*)

- d. $[[dali\ Fillip\ sings]](w_0)$
 $= \lambda q [q = \lambda w. sing(f, w) \vee q = \lambda w. \neg sing(f, w)]$
 $= \{ \text{'that Fillip sings'}, \text{'that Fillip does not sing'} \}$

The overt interrogative operator *dali* takes a proposition p (66b, in this case $p = \textit{Fillip sings}$), maps the proposition to the actual world w_0 (66d), and gives as a result a property of propositions, true of a proposition if it is p or $\neg p$. Similarly to the English question operator, *dali* has scope over the whole clause and needs a proposition as its argument. The resulting partition of the logical space is therefore $p/\neg p$.

The interpretation of a negative neutral *dali*-question is analogous to that of a positive one. The resulting partition of the logical space is again: $p/\neg p$ which is parallel to the one obtained by a positive *dali*-question. Overall, when neutral, *dali*-questions, whether positive or negative, can be interpreted in the same way as their English counterparts. However, *y/n* questions with focus will require a different calculation, similarly to English interrogatives with inverted negation.

7.2.2. *Li*-questions with broad focus on the verb

It was shown in section 7.1 that *li* –questions differ from their counterparts with *dali* in that they are always focus-related, allowing the operator to combine with a set of alternatives corresponding to a contextual restriction on the focus value of the embedded clause. Thus, as a question operator, *li* is of the type Q_F . However, similarly to *dali*-questions, *li*-interrogatives can also receive neutral interpretation. This is observed in the cases when *li* appears at the end of the clause or when it is adjoined to the verb and the focus feature of the verb is interpreted as broad. In those cases the whole clause (TP) is focused. As a result, in the absence of a contextually salient alternative proposition, the only remaining proposition in the set of alternatives is one of the opposite polarity (the assumption is that the opposite proposition is always contextually salient). Given that the semantic role of the interrogative particle *li* is similar to that of *dali* (it combines with the proposition(s) corresponding to the interrogative), I assume that this focus-related question operator combines with the contextually-dependent set of alternatives evoked by the presence of focus. In the case of broad focus in *li*-questions, the result is similar to the one obtained with the silent question operator Q in English, as the

combination of Q_F with both propositions contained in the set of alternatives has equivalent results ($p/\neg p$). The denotation of the focus-sensitive question operator *li* is provided in (67) below.

(67) **Denotation of *li*:**

$$[[li]] = \lambda C_{\langle\langle s, t \rangle, t \rangle} \lambda w_s \lambda q_{\langle s, t \rangle} [\exists t. t \in C \wedge t = q \vee \neg t = q]$$

The focus-sensitive question operator *li* is a function that takes as its argument the contextually-restricted set of alternatives evoked by focus, C^{143} . The result is a property of propositions that are true if the proposition is a member of the set of alternatives or if the proposition is the negative version of one of the alternatives. When C contains only two propositions (p and $\neg p$) the result of embedding p under *li* will be a property true of propositions that are either p or $\neg p$.

Neutral *dali* and the silent question operator Q in English have as their argument the proposition contained in the interrogative. In contrast, *li* is a function which takes as an argument a set of propositions, and maps each one of them to a property of worlds w . The difference between Q and Q_F , is thus that in questions with *li* the argument of the question operator corresponds to the focus semantic value of the proposition and contains more than one proposition; in fact, the focus semantic value corresponds to the set of contextually-restricted alternatives evoked by focus (C). Thus, Q_F is a function that combines with all of the propositions within the set of alternatives evoked by focus. In *li*-questions with neutral interpretation the set of alternatives contains only the positive and the negative version of the proposition embedded under the question operator. The denotation of the combination of Q_F with p and $\neg p$ respectively is identical. As a result, the denotation of a broad-focus *li*-question is equivalent to that of a neutral *dali*-question. The semantic denotation of a *li*-question with broad focus (neutral interpretation) is done similarly to that of a neutral *dali*-question.

(68) **Semantic interpretation of positive *li*-interrogatives with neutral interpretation:**

- a. *Filip pee li?*
 Philip sing.2p.sg.pres li
 ‘Does Philip sing?’

¹⁴³ Like English *only*, *li* sees the focus value of the embedded clause.

- b. LF: [_{CP} Q_F [[Philip sings]]^f]
- c. [[**Philip sings**]]^f = {λw. sing (f,w); λw. ¬ sing (f,w)}
- d. [[Q_F ([[Philip sings]]^f)]] (w₀)
 = λq [q = λw. sings (f,w) ∨ q = λw. ¬ sings (f,w)]
 = {that Philip sings, that Philip does not sing}

The question *Does Philip sing?* has the logical form *Philip sings*, a focused declarative clause, embedded under the silent focus-sensitive question operator Q_F (68b). The focus semantic value of the focused declarative is the set of propositions – a positive and a negative version of the declarative – that can be true in a world w if Philip sings or if Philip does not sing. (68c). The focus-sensitive question operator takes as an argument the focus semantic value of the clause *Philip sings* (68d), and produces properties of worlds which has its own argument saturated with w_0 . Once the world argument is saturated, the result for both propositions contained in the set of alternatives evoked by focus is a set of propositions equivalent to the positive or negative variant of the clause, i.e. {‘that Philip sings, ‘that Philip does not sing’}. The resulting partition of the logical space is of the type: $p/\neg p$, where p is equivalent to *Philip sings*. Thus, the computation of the broad focus interpretation of a *y/n* question with focus on the verb becomes equivalent to that of a neutral polar question with *dali* (Q). This is so because focus feature has percolated to the TP level and the set of alternatives generated by the presence of focus contains only two propositions: p and $\neg p$ ¹⁴⁴.

The calculation of a negative *li*-question with neutral interpretation is done in the same way. As in English, its denotation is the same as that of a positive polar question.

7.3. Polar questions with focus on the polarity

In this section I propose a possible way of calculating the interpretation of polar questions with VERUM in Bulgarian. I take VERUM in Bulgarian to be instantiated in the cases when an implicature with polarity opposite of that of the question is possible. Such an interpretation is possible when there is a narrow focus on the negation or on a functional element in T, such

¹⁴⁴ The set of alternative clauses arising from the presence of focus at the TP level contains only $p/\neg p$, as there are no other contextually salient clauses that are alternatives to the focused one. In the case that there is such an alternative, the set of alternatives must include it. In such a case, however, the interpretation of the question will not be neutral anymore, but similar to when *li* is adjoined to an NP. This type of questions is discussed in section 7.4 below.

as a non-clitic auxiliary. My analysis is inspired by Romero and Han (2001) and Han and Romero (2004).

7.3.1. Negative polar questions with VERUM

- Dali-questions

As observed above, when the negation is the focused element in *dali*-questions, these constructions have the interpretations reported for English polar interrogatives with VERUM (cf: (69a) and (69b) below).

(69) Neutral vs. focused *dali*-questions:

- a. *Dali Ivan (ne) pie kafe ili čaj?*
Dali Ivan (Neg) drink._{3p.sg.} coffee or tea
 ‘Is Ivan (not) drinking coffee or tea?’

(*y/n*, alt-reading; non- biased interpretation)

- b. *Dali NE PIE Ivan kafe ili čaj?*
Dali Neg drink._{3p.sg.} Ivan coffee or tea
 ‘Isn’t Ivan drinking coffee or tea?’

(only *y/n* reading; biased interpretation)

- c. *Dali PIE Ivan kafe ili čaj?*
Dali drink._{3p.sg.} Ivan coffee or tea
 ‘Is Ivan drinking coffee or tea?’

(only *y/n* reading; non- biased interpretation)

The examples above show that when the negation + verb complex is focused, *dali*-interrogatives pattern with English *y/n* questions with inverted negation. Focus on the polarity item (negation), as in (69b) and its consequent preposing results in the presence of the VERUM operator and in the possibility of having a biased interpretation with polarity opposite to that of the question. The fact that in Bulgarian negation is a proclitic to the verb somewhat complicates the situation. Given that negation forms a phonological word with the

verb, stressing and preposing such a complex does not clearly indicate which element is the one bearing focus. Either element (negation or the verb) could in principle be focused. Thus, by simply contrasting (69a) to (69b) one could not determine whether focus in (69b) is on the polarity element (negation) or on the verb. Intuitively, one would expect that since it is polarity focus, focus stress should be on the negation rather than on the verb, as it has been shown to be the case for English. However, if one is to assume that focus on the polarity could also be the result of stressing the verb in the negation + verb complex, it is expected that stress on the verb should trigger the same effect when negation is not present (69c), which is not the case. Thus, the sentence in (69c) clearly shows that it is focus on the negation what triggers the biased interpretation in (69b). Given that *dali*-questions fully pattern with English polar questions with inverted negation, I assume that their semantic denotation must be calculated in the same way as that of *y/n* questions with inverted negation in English. The representation in (70) is based on R&H's (2004) analysis:

(70) **Semantic computation of VERUM *dali*-question:**

Dali *NE* *PIE* *Filip?*

Whether Neg drinks Phillip

'Isn't Phillip drinking?'

a. *Dali* *NE* *PIE* Phillip?

b. LF: [_{CP} *dali* VERUM [_{IP} not Phillip drinks]]

c. [[CP]] (w_0) =

$$= \lambda q [q = \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w')$$

$$\lambda w'''. \neg \text{drink}(f, w''') \in \text{CG}_w]] \vee q = \lambda w. \neg \forall w' \in \text{Epi}_x(w)$$

$$[\forall w'' \in \text{Conv}_x(w') [\lambda w'''. \neg \text{drink}(f, w''') \in \text{CG}_w^n]]^{145}$$

= { 'it is for sure that we should add to CG that Phillip drinks', 'it is not for sure that we should add to CG that Phillip drinks' }

- Partition of the logical space:

FOR SURE-CG- NOT_x p

;

¬ FOR SURE-CG-NOT_x p

¹⁴⁵ As before, the index *x* stands for the speaker or addressee; $\text{Epi}_x(w)$ represents the set of all the worlds epistemically accessible to the participants in the conversation; $\text{Conv}_x(w')$ is the set of worlds where all the conversational goals of *x* in *w'* are fulfilled.

The interpretation of a *dali*-question containing the VERUM operator is analogous to that of a negative *y/n* question with inverted negation in English. The VERUM operator is embedded under the question operator (*dali*). In turn, the VERUM operator is a function that takes as its argument a proposition *p* which corresponds to a declarative equivalent to the proposition embedded under the question operator. The result is another function which verifies in the actual world that for every world *w'* that is an element of the worlds epistemically accessible to *x* (the speaker or the addressee), and for every *w''* that is a member of the set of worlds where all conversational goals of *x* are fulfilled, the proposition *p* is part of the common ground of *x*. The overt interrogative operator *dali* takes as its argument the proposition containing the VERUM operator and maps it to a property of worlds *w*. The result is not a balanced partition of the logical space such as *p/¬p* as in a question without VERUM, but one that is defined by the presence of VERUM (*for sure* vs. any other degree of certainty). The resulting partition is of the type: it is for sure that we have to add *p* to the CG/it is not for sure that we have to add *p* to the CG. As expected, the question in (70) also involves an epistemic implicature with polarity opposite to the one of the question. In other words, by uttering it, the speaker implies that s/he actually believes that Phillip drinks. The intention of such a question then is to verify whether the interlocutor is really convinced of the opposite, and if so, whether this should be added to the common ground.

Lastly, note that the negation contained in the interrogative scopes over the embedded proposition. So, the partition in this case is: it is for sure that we have to add *that Phillip doesn't drink* to the CG/it is not for sure that we have to add *that Phillip doesn't drink* to the CG. The inclusion of the negation will be crucial when accounting for the ambiguous answers to negative *y/n* questions in Bulgarian in section 7.3.3.

-Li questions with VERUM.

Li-questions, like the ones formed with *dali*, contain VERUM only when negation or another focus bearing element situated in T is focused¹⁴⁶. As already illustrated above, the negation plus verb complex must immediately precede the interrogative particle. So far, two instances of *li*-questions containing VERUM have been illustrated:

¹⁴⁶ I will not repeat the discussion on positive polar questions, but as in *dali*-questions, positive polar questions with *li* can contain VERUM only when the auxiliary can bear stress.

(71) Li questions with VERUM

a. *Ivan NE PIE li kafe ili čaj?*

Ivan Neg drink._{3p.sg.} li coffee or tea

‘About Ivan, doesn’t he drink coffee or tea?’

(only *yes/no* reading; possible biased interpretation)

b. *NE PIE li Ivan kafe ili čaj?*

Neg drink._{3p.sg.} li Ivan coffee or tea

‘Doesn’t Ivan drink coffee or tea?’

(only *yes/no* reading; possible biased interpretation)

As already discussed, these two types of questions do not differ in the type of focus involved. The only disparity between them is that in (71a) the subject (*Ivan*) is the discourse topic and it has been fronted, whereas in (71b) the subject has not been fronted. In both cases, the focused element is the negation and as a consequence the negation + verb complex immediately precedes the interrogative particle *li*. The sequence subject plus verb in (71a) cannot be interpreted as a focused phrase, as there is no point in the syntactic derivation that subject plus verb could form together a constituent that could be focused and therefore fronted. The discourse topic can be either adjoined to the FocP headed by *li* or at CP¹⁴⁷. However, it cannot be interpreted as part of the focused constituent.

The semantic computation of a *li*-interrogative with VERUM is quite similar to that of *li* with broad focus. In contrast with the overt question operator *dali*, *li* only appears in questions containing focus. This focus can be either on the polarity or on another element of the clause. When the focus is placed on the polarity, the result is the presence of the VERUM operator. The set of contextually salient alternatives (evoked by focus) consists of epistemic propositions of the type *for sure p*/ \neg *for sure p*. Note that in this case, the set of alternatives is similar to when *li* combines with a proposition containing broad focus: the set of alternatives contains one proposition and its negative counterpart. The set evoked by focus on the polarity is a set of alternative propositions related to the degree of certainty with which the proposition embedded under the interrogative operator should be added or not to the common ground. As

¹⁴⁷ The precise syntactic position of ‘*Ivan*’ is not of relevance in this case. What is relevant is that it is not part of the focused constituent. See Bošković (2004c), Grohmann (2000, 2006), King (1995), Krapova (2002a,b), Lambova (2001), among others, for a discussion related to topicalization in Slavic and Bulgarian in particular,

when *li* combines with broad focus, the result of the combination of *li* with each of the epistemic alternatives is identical. Thus, the resulting partition of the logical space is as the one in English: FOR SURE-CG_x p /¬FOR SURE-CG_x p. Just like when another element is focused, *li* combines with each member of the set of alternatives, one at a time, similarly to English *only* which is seen as a special type of focus adverb that can ‘see’ the focus semantic value of a phrase and combine with it. To represent the derivation of a *li*-question with focus on the polarity, I use again the symbol Q_F which symbolizes that *li* is a special question operator *li*, which appears only in questions containing focus.

(72) **Semantic computation of VERUM *li*-question:**

NE *PIE* *li* *Filip?*
 Neg drinks *li* Phillip
 ‘Doesn’t Phillip drink?’

- a. NE PIE *li* Phillip?
- b. LF: [CP Q_F VERUM [IP not Phillip drink]]
- c. [[VERUM [IP not_F Phillip drink]]] = { FOR SURE-CG_x *that Phillip does not drink* ;
 ¬FOR SURE-CG_x *that Phillip does not drink* }
- d. [[CP]] (w₀) =
 = λq [q = λw. ∀w' ∈ Epi_x(w) [∀w'' ∈ Conv_x(w')
 λw''' . ¬drink(*f*, w''') ∈ CG_w]] ∨ q = λw. ¬∀w' ∈ Epi_x(w)
 [∀w'' ∈ Conv_x(w') [λw''' . ¬ drink (*f*, w''') ∈ CG_w⁰]]
 = { ‘it is for sure that we should add to CG that Phillip doesn’t drink’, ‘it is not for sure that we should add to CG that Phillip doesn’t drink’ }

- Partition of the logical space (for both combinations):

FOR SURE-CG- NOT_x p	;	¬ FOR SURE-CG-NOT_x p
---------------------------------------	---	--

The interpretation of a *li*-question with VERUM is analogous to that of a *dali*-question with VERUM. The focus on the polarity (negation) results in the presence of the discourse operator

VERUM, which aims to ensure that p should be added to the CG. The proposition containing the VERUM operator is the argument of the focus question operator Q_F (72b). The focus semantic value of this proposition contains two epistemic propositions: *for sure* p/\neg *for sure* p (72c). The Q_F takes as its argument the set evoked by the presence of focus (72d). As in broad-focus *li*-questions, the resulting interpretations of the combination of *li* and the propositions from the set of alternatives are equivalent. The result is the same partition of the logical space as the one in *dali*-questions with VERUM. Again, the speaker has the opposite belief to that expressed in the question; thus s/he wants to ascertain that this proposition is the correct contribution to the common ground. As a result, an implicature with polarity opposite to that of the question is possible.

7.3.2. Positive polar questions with VERUM

As mentioned earlier, Bulgarian does not seem to exhibit positive polar questions with VERUM at first sight. Two facts are relevant in this case. First, in contrast to English, the verb in simple tenses does not remain within the VP, but it raises to T. Hence, in order for a *V-li* question or a *dali*-question with focus on the verb to be interpreted as an interrogative with focus on the polarity, the lexical verb (and not the auxiliary as is the case in English) should be able to carry polarity focus. Examples provided containing simple tensed (one word) focused verbs clearly indicate that this does not hold for Bulgarian. What seems to be the case is that similarly to English, an overt functional element (i.e. an auxiliary) that can be stressed must be present and focused in order for positive *y/n* questions to exhibit focus on the polarity. Some examples are presented in (73).

(73) **Focus on the auxiliary in *dali*-questions:**

- a. *Dali E PIL Ivan kafe ili čaj?*
Dali Aux.3p.sg.cl. drink.p.p. Ivan coffee or tea
 ‘Has Ivan drunk coffee or tea?’

(only *y/n* reading; non- biased interpretation)

b. **Dali E Ivan pil kafe ili čaj?*
Dali Aux.3p.sg.cl. Ivan drink.p.p. coffee or tea
 ‘Has Ivan drunk coffee or tea?’

c. *Dali BEŠE PIL Ivan kafe ili čaj?*
Dali Aux.3p.sg.past. drink.p.p. Ivan coffee or tea
 ‘HAD Ivan drunk coffee or tea?’

(only *y/n* reading; possible biased interpretation)

d. *Dali BEŠE Ivan pil kafe ili čaj?* (colloquial)
Dali Aux.3p.sg.past. Ivan drink.p.p. coffee or tea
 ‘HAD Ivan drunk coffee or tea?’

(only *y/n* reading; possible biased interpretation)

The paradigm provided in (73) illustrates the different behaviour of clitic-like auxiliaries such as *e*¹⁴⁸ (is) from auxiliaries that can bear stress such as *beše* (was). Auxiliaries that behave as clitics cannot bear stress; hence, they seem to be incapable of being focused¹⁴⁹. This is to some extent contradictory to what is observed in the case of negation, as negation seems to be able to bear focus even though it is a proclitic to the verb¹⁵⁰. Intuitively, such a contrast could be attributed to the idea that clitic-like auxiliary verbs create a real syntactic and semantic

¹⁴⁸ I am abstracting from some Western Bulgarian dialects where the auxiliary *e* (is) can be stressed in colloquial speech. The same occurs with other clitic-like auxiliaries such as *šte* (will). This phenomenon can be attributed either to the different phonological characteristics of those auxiliaries in this dialect or to the influence of West Slavic languages like Serbo-Croatian, where *li* is a second position clitic.

Ex: *E li risuval kartina Ivan?*
Aux.3p.sg.pres.cl. li drawn.p.p. picture Ivan
 ‘Has Ivan drawn a picture?’

¹⁴⁹ Or at least they are unable to serve as a ‘host’ for the clitic *li*.

¹⁵⁰ In fact, in negative *y/n* questions with focus on the polarity where negation combines with the auxiliary *e* (is), negation is the stressed element (if focus is on the verb, then the stress falls on the auxiliary *e*: *ne E li...*, as expected).

Ex: *NE e li gledal filma?*
Neg Aux. li watch.p.p. film-the
 ‘Hasn’t he seen the film?’

Cases like the one above clearly show that although negation is a proclitic to the verb, it can also be stressed/focused. Thus, in contrast to clitic-like auxiliaries, it can be focused.

complex with the lexical verb in the syntax. This is also supported by the fact that the auxiliary in this case cannot be split from the lexical verb (73b). Such a syntactic complex has its own semantic meaning and only the lexical verb can be focused in it, as it is the stress-bearing element. In contrast, negation is not a verbal element and cannot create the same type of complex with the lexical verb. The negation + verb complex seems to be a phonological phenomenon rather than a semantic/syntactic one. As a result, it is no longer surprising that in this case either element (negation or the lexical verb) can be focused, despite the fact that they create a single phonological word. However, this is just an intuitive hypothesis and the diverse behaviour of different clitic-like functional elements needs to be explored further.

Crucially, the paradigm in (73) shows that auxiliaries that can bear stress behave similarly to auxiliaries in English and in such cases focus on the auxiliary results in the presence of the VERUM operator and the consequent possibility of conveying an interpretation with polarity opposite to that of the question (73c) and (73d).

To summarize, positive polar questions resemble English *y/n* questions. At first it seems that the biased interpretation of positive polar Bulgarian interrogatives is unavailable, due to two facts: (i) in simple (one word) tenses it is the lexical verb that raises to T; and (ii) most auxiliaries have clitic-like behaviour, and thus cannot be stressed and focused. However, cases with complex tenses with non-clitic auxiliaries (73c) show that Bulgarian patterns with English even in the case of positive questions. Bulgarian data thus make evident two important characteristics of focus on the polarity. On the one hand, focus on the verbal complex does not necessarily result on focus on the polarity. On the other hand, the VERUM operator is not indifferent with respect to the nature of the element in T that is focused. First, such an element must be functional (as focus on lexical verbs in T cannot result in focus on the polarity 73a); second, such a functional element must be able to bear stress or at least to have its own semantic focus [cf: (73a) and (73c)]. As Bulgarian polar questions with focus on the auxiliary pattern with English *y/n* questions with *really*, I propose that their semantic denotation should be done in the same fashion. As is the case for negative questions containing VERUM, the focus-sensitive operator Q_F takes as its argument the set of propositions evoked by focus (*for sure p*/ \neg *for sure p*) and combines with each member of the set, one at a time. As the set of alternatives contains only one proposition and its negation, the outcome is the same as in *li*-questions with broad focus, i.e. both calculations have the same result. Consequently, positive *li* and *dali*-questions with VERUM have equal denotations.

(74) Semantic computation of a positive *y/n* question with VERUM:

a. *BEŠE* *li* *Ivan* *pil?*
 Aux.3p.sg.past. *li* *Ivan* drink_{p.p.}
 ‘HAD Ivan drunk?’

b. LF: [CP Q_F VERUM [IP John drink]]

c. [[VERUM [IP Had_F Ivan drunk]]] = { FOR SURE-CG_x *that Ivan had drunk* ; ¬FOR SURE-CG_x *that Ivan had drunk* }

d. [[CP]] (w₀) =

$$= \lambda q [q = \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w')$$

$$\lambda w''' . \text{drink}(j, w''') \in \text{CG}_{w'}]] \vee q = \lambda w. \neg \forall w' \in \text{Epi}_x(w)$$

$$[\forall w'' \in \text{Conv}_x(w') [\lambda w''' . \text{drink}(j, w''') \in \text{CG}_{w'}]]$$

= {‘it is for sure that we should add to CG that Ivan had drunk’, ‘it is not for sure that we should add to CG that Ivan had drunk’}

- Partition of the logical space:

FOR SURE-CG_x p	;	¬ FOR SURE-CG_x p
----------------------------------	---	------------------------------------

As was the case with negative *y/n* questions with focus on the polarity, the role of the VERUM operator is to verify the degree of certainty of the proposition. As a result, when added to a positive polar interrogative, VERUM needs to assert the certainty of *p/¬p*, respectively, and make sure that this is the only true one among the set of alternatives evoked by focus. Therefore, the resulting partition of the logical space is not *p/¬p*, as the formal semantic analysis of neutral polar questions would predict. An important difference, however, between positive and negative *y/n* questions containing the VERUM operator is that the proposition contained in the partition in the logical space is positive in this case. Therefore, the denotation of a positive *y/n* interrogative with VERUM is not equivalent to that of negative polar questions of this type. Such a difference is critical for understanding the ambiguity of negative *y/n* questions in Bulgarian, which discussed in the following section.

7.3.3. The mystery of negative polar questions: a solution

One of the puzzling properties of negative *y/n* questions in Bulgarian was the fact that their answers are ambiguous. I repeat the relevant examples for convenience in (75) through (78).

(75) **Positive *li* -questions:**

A: - *Viždaš li Ivan?*
See.2p.sg.pres li Ivan
'Do you see Ivan?'

B₁: - *Da* 'Yes' = I see him.

B₂: - *Ne* 'No' = I don't see him. (Can implicate: *I can hear him/I talk to him/I write him emails ...*)

(76) **Negative *li* -questions:**

A: - *Ne viždaš li Ivan?*
Neg see.2p.sg.pres li Ivan
'Do you not see Ivan?'/ 'Don't you see Ivan?'

B₁: - *Da* 'Yes' = I see him. /≠ I don't see him.

B₂: - *Ne* 'No' = I don't see him. /≠ I see him.

(In both cases the negative can implicate: *I can hear him/I talk to him/I write him emails ...*)

(77) **Positive *dali* -questions:**

A: - *Dali viždaš Ivan?*
Dali see.2p.sg.pres Ivan
'Do you see Ivan?'

B₁: - *Yes* = I see him.

B₂: - *No* = I don't see him. (Can implicate: *...but I can hear him, but I write to him; ...but I talk to him, etc.*)

(78) Negative *dali*-questions

A: - *Dali ne viždaš Ivan*¹⁵¹?
Dali Neg see.2p.sg.pres Ivan
'Do you not see Ivan?'/ 'Don't you see Ivan?'

B₁: - *Yes* = I see him. /≠ I don't see him.

B₂: - *No* = I don't see him. /≠ I see him.

(In both cases the negative can implicate: *I can hear him/I talk to him/I write him emails ...*)

As the above examples reveal, answers to a negative polar question in Bulgarian containing only a *yes* or a *no* are ambiguous. Both *yes* and *no* can either confirm the event or deny it. Interestingly, when answering negatively to a positive *y/n* question, there is a possible implicature that the speaker has some other relation to the object. For example, if the meaning conveyed is '*I don't see him*', this could imply '*I can hear him*', '*I talk to him*' or '*I email him*' depending on the context.

In this section, I will focus on the ambiguity of the answers of negative polar questions. I will try to account for the possible implicature in section 7.4 where *XP-li* questions are addressed.

In order to explain this puzzling data regarding negative *y/n* questions, we need to recall two critical facts about Bulgarian *y/n* questions. First, *V(P)-li* questions (with a focused verb) are ambiguous in their interpretation. Focus on the verb can be interpreted as either narrow focus on *V*, or as broad focus at *VP/TP* level¹⁵². Second, in the paradigms presented in (75) through (78) only the negative *y/n* questions can contain the *VERUM* operator, as their positive counterparts are formed with verbs in simple tenses.

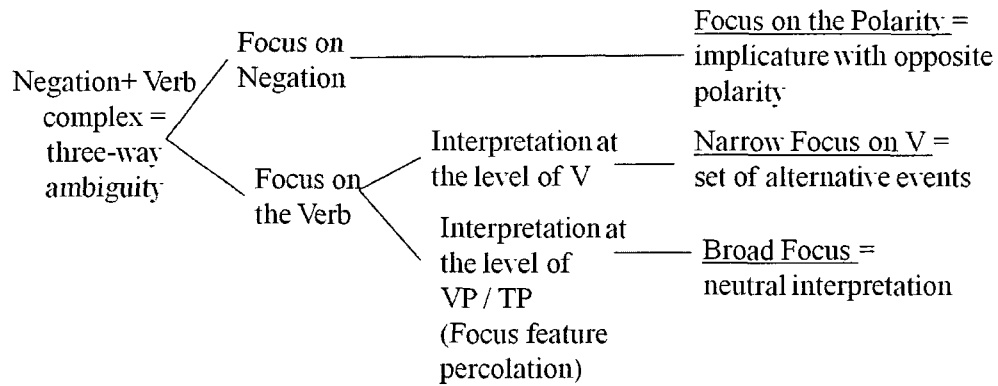
¹⁵¹ Note that since Bulgarian is a pro-drop language, this sentence can receive neutral or focused interpretation, depending on the stress on the verb.

¹⁵² In the above examples, there is no difference expected between cases when the focus feature is interpreted at *VP* or at *TP* level, as the verb, which is the focused element, always raises to *T* in Bulgarian. Thus, in the cases when the focus feature on the verb is interpreted as broad, focus will always result at the *TP* level. A difference could be observed in sentences containing complex tenses with non-clitic auxiliaries. In such a case, only the auxiliary is in *T*, whereas the verb remains within the *VP*. In those cases, a focus feature on the lexical verb should not be able to percolate to the level of *TP* and generate a neutral interpretation. Focus at the level of *TP* would be the result of a broad focus on the auxiliary, whereas focus at the *VP* level would be the outcome of a broad focus on the lexical verb. For simplicity, I am using verbs in simple tenses; however, the logic behind the difference between broad focus interpretation at the *VP* and at the *TP* level is the same as that between negative and positive polar questions with *VERUM*.

It has already been mentioned that polar questions bearing focus on the negation + verb complex exhibit ambiguity between two interpretations, as the focused element represents one phonological word in which two elements could be focused: (i) focus on polarity, when the focused element is the negation, and (ii) focus on the verb, when the focused element is the verb. In the first case, the VERUM operator is present and an implicature with polarity opposite to that of the interrogative is possible. Focus on the verb (V(P)-*li* questions¹⁵³), in turn, is also ambiguous. This ambiguity is a direct outcome of the presence of focus and of the way that focus can percolate up the structure. Selkirk (1996) suggests that focus can percolate to the top of the phrase if the head of the phrase or an internal argument of the phrase are F(ocus)-marked. This theory generates the correct predictions for the ambiguous interpretation of *y/n* questions in Bulgarian when the focused element is the verb. Given that the verb is the main element within the VP, there are two possible ways to interpret focus on the verb. One could assume that there is a narrow focus on the verb, i.e. focus features have not percolated to the top of the phrase. The second possibility is to assume that focus features have actually percolated to the top of the phrase, thus making the whole phrase focused. Since the verb in Bulgarian does not remain in V (as do English verbs) but raises to T, percolation of focus features would lead to focusing the whole TP. Recall now, that based on my experiments and following Izvorski (1995) I have proposed that subjects in Bulgarian remain in the VP unless focused. Thus, focus on the verb interpreted at the level of the TP phrase is equivalent to focusing the whole clause, which I called *broad focus*. In such a case the question becomes equivalent to a neutral *y/n* question in English, as the interrogative operator takes scope over the whole clause and the only alternative of this clause is another one of the opposite polarity. A brief scheme of the possible ambiguities in negative questions with focus on the negation + verb complex is presented in the figure in (79) below.

¹⁵³ Note that when the subject is not overtly expressed, *dali*-questions where the verb follows the interrogative word *dali* are also ambiguous in the same way. See example (78).

(79) Ambiguity in negative y/n questions with focus on the negation + V complex:



The figure in (79) is a schematic illustration of the three-way ambiguity and the respective outcomes for each interpretation of negative VP-*li* questions. When negation is the focused element, the resulting interpretation is that of a y/n interrogative with inverted negation. In the case when the verb is the element bearing the focus feature, two possible interpretations are available: (i) narrow focus on the verb in which case the result is a contextually salient set of alternative events, or (ii) broad focus interpretation, in which case the focus feature percolates to the top of the phrase and the interpretation is equivalent to that of a neutral y/n question.

The three interpretations result in three different semantic derivations. Focus on the negation results in a computation containing the VERUM operator. Focus on the verb results in two possible derivations. If it is interpreted as narrow, the computation is necessarily contextually dependent, as proposed by Rooth (1992, 1995)¹⁵⁴. If focus on the verb is interpreted at the VP/TP level, broad focus on the clause results in a computation comparable to that of neutral y/n questions, where the resulting partition of the logical space is of the type $p/\neg p$. An example of the possible interpretations with focus on the polarity and broad focus on the verb and their respective computations is provided in (80).

¹⁵⁴ I will return to the computation of the semantics of interrogatives of this type in the next section.

(80) Negative *y/n* question with focus on the negation/broad focus on the verb¹⁵⁵:

Ne puši li Ivan?

Neg smoke._{2p.sg.pres.} li Ivan

‘Does Ivan not smoke?’/‘Doesn’t Ivan smoke?’

Interpretation 1: *Does Ivan not smoke?*

(neutral reading, broad focus on V)

Interpretation 2: *Doesn’t Ivan smoke?*

(inverted negation reading, focus on negation)

(81) Calculation of interpretation 1:

a. *Ne puši li Ivan?*

Neg smoke._{2p.sg.pres.} li Ivan

‘Does Ivan not smoke?’

b. LF: [_{CP} Q_F [not [Ivan smoke]]]^f]

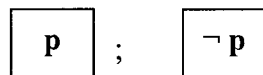
c. [[[not [Ivan smoke]]]^f] = {λw.¬smoke(*I, w*); λw.smoke(*I, w*)}

d. [[CP]](*w*₀)

= λq [q = λw. ¬smoke(*I, w*) ∨ q = λw. ¬¬smoke(*I, w*)]

= {that Ivan does not smoke, that Ivan smokes}

- Partition of the logical space (for both alternatives):



The question *Does Ivan not smoke?* has the logical form *Ivan does not smoke*, a focused declarative clause, embedded under the silent focus-sensitive question operator Q_F (81b). The denotation of the focused declarative is the set of propositions – a positive and a negative version of the declarative – that can be true in a world w if Ivan does not smoke or if Ivan smokes (81c). The focus-sensitive question operator [see denotation in (67)] takes as an

¹⁵⁵ The third possible interpretation resulting from narrow focus on V will be discussed in the next section. In this particular case, this third interpretation resembles to a high extent interpretation 1 (broad focus on V), as the verb is intransitive, so broad and narrow focus differ in only including/excluding the subject. A narrow focus reading is more easily available with transitive verbs, as there is a bigger difference between narrow and broad focus on V. In the current example, I use a *li*-question, as the focused element is easier to distinguish. *Dali*-interrogatives receive the same denotations and are ambiguous in the same way.

argument both propositions members of the set of alternatives evoked by focus, one at a time. The argument of Q_F is the contextually-restricted focus semantic value (C) of the embedded clause. The members of C are *Ivan does not smoke* and *Ivan smokes*, respectively and Q_F combines with each one of them. In both cases the result is a property of worlds. Once the world argument is saturated, the result in both cases is a set of propositions equivalent to the positive or negative variant of the clause, i.e. {'that Ivan smokes', 'that Ivan does not smoke'}. The resulting partition of the logical space is thus of the type: $p/\neg p$, where p is equivalent to *Ivan does not smoke*. As a consequence, the computation of the broad focus interpretation of a y/n question with focus on the verb is equivalent to that of a neutral polar question. This is so because focus has percolated to the TP level and the set of alternatives generated by the presence of focus contains only two propositions: p and $\neg p$. As the set of possible answers contains only $p/\neg p$, answers to interpretation 1 of this negative y/n question should also be analogous to those in English. Thus, a positive answer means *yes, Ivan does smoke*, and a negative one indicates *no, Ivan does not smoke*.

The second interpretation of Bulgarian negative y/n questions with focus on the negation + verb complex is obtained when the interlocutor assumes that there is focus on the negation. This interpretation corresponds to that of English y/n questions with inverted negation, e.g., questions with focus on the polarity, containing the VERUM operator. This interpretation has the following semantic computation.

(82) **Calculation of interpretation 2:**

a. *Ne puši li Ivan?*

Neg smoke._{2p.sg.pres.} li Ivan

'Does Ivan not smoke?'

b. LF: [_{CP} Q_F VERUM [_{IP} not Ivan smoke]]

c. [[VERUM [_{IP} not_F Ivan smoke]]] = {FOR SURE-CG_x that *Ivan does not smoke*; ¬FOR SURE-CG_x that *Ivan does not smoke* }

d. [[CP]] (w_0) =

= λq [$q = \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w')$

$\lambda w''' . \neg \text{smoke}(I, w''') \in \text{CG}_{w'}]] \vee q = \lambda w. \neg \forall w' \in \text{Epi}_x(w)$

$[\forall w'' \in \text{Conv}_x(w') [\lambda w'''. \neg \text{smoke}(I, w''') \in \text{CG}_w^n]]$

= {‘it is for sure that we should add to CG that Ivan doesn’t smoke’, ‘it is not for sure that we should add to CG that Ivan doesn’t smoke’}

- Partition of the logical space:

FOR SURE-CG- NOT_x p

;

¬ FOR SURE-CG-NOT_x p

The calculation of the second interpretation of this negative *li*-question is analogous to that of questions containing the VERUM operator. Although negation forms a phonological word with the verb, negation was initially the focused constituent. The result is focus on the polarity and the presence of VERUM. The focused proposition containing the VERUM operator is the argument of the focus question operator (Q_F). The presence of focus in combination with the VERUM operator evokes a set of alternatives of the type: *for sure p* / *¬for sure p*, as the VERUM operator serves its usual function to make certain that *p* should be added for sure to the CG. The focus-sensitive Q_F then combines with each alternative within the set, as it does in *li*-questions with broad focus. As in interpretation 1, the proposition *p* is equivalent to *Ivan does not smoke*. In such a case, given that the goal of the question is to make sure that we should add *p* to the CG, it is not surprising anymore that a positive answer means: *yes, Ivan does not smoke* (corresponding to: yes, we should add to the CG that *p*) and a negative answer conveys the meaning: *no, Ivan smokes* (corresponding to: no, we should not add to the CG that *p*, where *p* is *Ivan does not smoke*).

The semantic computation for negative questions with *dali* is done analogously to the one for *li*-questions. *Dali*-interrogatives are ambiguous in the same way since focus on the negation + verb complex exhibits the same three-way ambiguity. The neutral reading is even more easily available, as Bulgarian is a pro-drop language and, if the subject is not present, the neutral word order of the declarative would be VO, just as the word order when the verb complex is focused. What this means is that unless there is a heavy stress on the verb, the verb does not have to be focused in order to be the first element following *dali*. Therefore, a *dali*-question of the type of (78) above would always be ambiguous between two possible readings: a neutral one and one where there is focus on the negation + verb complex. The only difference in the semantic computation of interrogatives with *li* and *dali* is the nature of the question operator. In the case of *li*-questions, the question operator is the focus-sensitive Q_F

and requires that there be a focused element within the clause. With regards to *dali*-questions, *dali* is equivalent to the silent question (Q) in English which in this case combines with the focused proposition via point-wise function argument application.

To summarize, the fact that negative *y/n* questions contain focus (on the verb or on the polarity) and that such a focus can be interpreted at different levels, leads to the possibility of having multiple interpretations in negative interrogatives. This ambiguity can straightforwardly account for the puzzling phenomena noted in Bulgarian. The lack of ambiguity in English negative *y/n* questions does not contradict this idea, since negation in English is not adjoined to the lexical verb and whether the negation or the verb is the focused element can be easily distinguished. Thus, in English, even when focus on the verb percolates to the top of the phrase, it does not percolate to the top of the TP, but only to the top of the VP, as ‘dummy *do*’ is inserted in T. Therefore, focus in this context in English cannot be interpreted as broad (as in the case of Bulgarian). As a result, since the lexical verb does not move to T and it is not the element that contracts with negation, a question cannot yield ambiguity between focus on the polarity reading and a neutral one.

7.4. Questions containing narrow focus other than focus on the polarity

From the very beginning of this chapter I have been demonstrating that both types of *y/n* interrogatives in Bulgarian can contain a focused element. Importantly, both the verb complex (as in the case of the VERUM operator), or any other element of the clause can precede the question particle *li*, or follow the interrogative word *dali* in the respective type of focused questions. To the best of my knowledge, this type of focus in interrogatives has not been discussed in the literature so far. It cannot be analyzed as analogous to focus on the polarity, as it does not convey the same interpretation and does not give rise to implicatures with polarity opposite to the one of the interrogative.

This section is dedicated to *y/n* interrogatives in Bulgarian that contain narrow focus different from focus on the polarity. I assume that similarly to the VERUM operator, focus in this case also brings out alternatives. However, in this case, these are not epistemic propositions related to the certainty of the interlocutors. Focus in this occurrence evokes a contextually-dependent set of alternatives (sets of propositions) over which the interrogative element operates, similarly to English *only*. In that sense the two types of focus are very

similar as they both evoke sets of alternatives. However, the two types of sets are of a very different kind, due to the nature of the focused elements. I repeat in (83) and (6) below the relevant examples.

(83) **Li- interrogatives with focus:**

a) *IVAN li risuva vseki den?*

Ivan li draw every day

‘Is it IVAN the one who draws every day?’/‘Does IVAN draw every day?’

(possible implicature: there might be someone else who is drawing every day)

b) *RISUVA li Ivan vseki den?*

Draws li Ivan every day

‘Does Ivan DRAW every day?’

(possible implicature: there might be something else that Ivan is doing every day)

c) *VSEKI DEN li risuva Ivan?*

Every day li draws Ivan

‘Is it EVERY DAY that Ivan draws?’

(possible implicature: it is possible that Ivan draws every other day or once a week...etc.)

(84) **Dali- interrogatives with focus:**

a) *Dali IVAN risuva vseki den?* (with heavy stress on *Ivan*)

Whether *Ivan* draws every day

‘(I want to know) whether IVAN draws every day.’/ ‘(I want to know) whether IVAN is the one who draws every day.’

(possible implicature: there might be someone else who is drawing every day)

b) *Dali RISUVA Ivan vseki den?*

Whether draws Ivan every day

‘(I want to know) whether Ivan DRAWS every day.’

(possible implicature: there might be something else that Ivan is doing every day)

- c) *Dali* *VSEKI DEN risuva Ivan?*
 Whether every day draws Ivan

‘(I want to know) whether Ivan draws EVERY DAY.’

(possible implicature: it is possible that Ivan draws every other day or once a week...etc.)

The translations of the examples above show that focus in these occurrences cannot be considered equivalent to focus on the polarity. First, the questions seem to be oriented only to those parts of the propositions that are focused and not to the propositions as a whole, as when the VERUM operator is present or when the interrogatives are interpreted as neutral. Second, there is no implicature available with polarity opposite to that of the question itself, i.e. the questions are not biased. Interestingly, however, all interrogatives of this type can give rise to implicatures that there might be a different element of the same type as the focused one, for which the proposition is true. For example, if the focused element is the subject, the implicature is that there could be someone else doing what the focused subject is doing instead. If the focused element is the verb, the implicature involves an event which could be true instead of the focused one, etc. Thus, similarly to when VERUM is present, there seems to be a possible alternative to the one expressed by the focused element. However, in this case, it is not regarding the polarity of the question, but it involves only elements of the same type as the focused one.

I will begin with a brief review of the proposed semantic analysis of Bulgarian *y/n* questions so far. It has already been demonstrated that both types of *y/n* interrogatives in Bulgarian can be focused. In *li*-questions, the focused element is always the segment preceding *li*. In *dali*-questions the focused element can be the phrase following *dali*. If this phrase is the subject, it is heavily stressed; if it is the verb or one of its arguments, the typical SVO word order after *dali* is altered. I have argued that in negative *y/n* questions where the focused element is the verbal complex, interpretation is three-way ambiguous.¹⁵⁶ If focus comes from a focus feature on the negation, the interpretation is equivalent to what is observed in negative *y/n* questions in English with inverted negation. In this case, a discourse operator (VERUM) is present and it is an instance of focus on the polarity. Such a focus introduces a set of alternatives, regarding the certainty of the proposition expressed by the interrogative. The role of this operator is to make sure that the declarative clause corresponding to the

¹⁵⁶ The three-way ambiguity was represented in (11).

interrogative must be added for sure to the common ground. As a result, interrogatives containing the VERUM operator give rise to possible implicatures with polarity opposite to that of the interrogative. Focus on the verb, on its turn, can be interpreted either as broad (at the TP level) or narrow (at the V level). In the first case, the resulting interpretation is similar to that of neutral polar questions, as the only possible alternative to the focused clause is an analogous clause with opposite polarity. In the case of narrow focus, a set of alternative properties of events is evoked, which gives rise to an implicature that there might be another event that can be true of the subject and object of the clause. In the case of Bulgarian I have shown as well that focus on the polarity is present in positive polar questions only when there is a functional element in T that can bear stress and focus features.

In all cases when focus is present (all types of *li*-questions and focused *dali*-questions), its presence is reflected by the lack of alternative readings in alternative *y/n* questions. However, an implicature with polarity opposite to the one of the interrogative is not available. Thus, in this case, the VERUM operator is not present. Another important piece of data is the fact that focused *y/n* questions in Bulgarian parallel *wh*-questions in that they have to follow the question-answer paradigm, as defined by Rooth (1995).

I build the semantic analysis of *y/n* questions with narrow focus largely on the theory developed by Rooth (1985, 1992, 1995), where focus creates a set of contextually-dependent alternatives of the same semantic type.

Dali-questions with altered word order and all *li*-questions in Bulgarian exhibit properties observed in contexts where focus is present. First, the element following *dali* or preceding *li* is the most prosodically prominent element in the clause. Second, these types of *y/n* interrogatives lack the alternative readings in alternative *y/n* questions. Third, non-neutral polar questions in Bulgarian parallel constituent questions in that they have to follow the question-answer paradigm. This parallel between *wh*-questions and *y/n* interrogatives is highly indicative, as I pursue a uniform syntactic and possibly semantic analysis of interrogatives. What is more, it has already been argued that *wh*-elements introduce sets of alternatives, similarly to focus. In contrast with focus, however, *wh*-elements cannot introduce an ordinary semantic value.¹⁵⁷

¹⁵⁷ For more details and for an approach to the semantics of *wh*-interrogatives along these lines, see Beck (2006). Beck also discusses the fact that, differently from focus-sensitive adverbs, which require that the phrase with which they combine have a semantic denotation, the silent question operator Q in English can combine with a phrase whose semantic value is undefined. In that sense, *dali*-does not act like the silent Q operator in English in

I propose, therefore, that in this type of *y/n* interrogatives, focus is always present. Consequently, their semantic calculation must be done differently from the interpretation of neutral *y/n* questions in Bulgarian. Crucially, the set of possible answers of these questions must contain more than $p/\neg p$ and this should be defined by the semantic denotation of the focused phrase on the one hand, and by the context, on the other. I assume that in these questions the interrogative word *dali* combines with the set of alternative propositions evoked by focus via point-wise function argument application, whereas the question particle *li* acts similarly to the focus-sensitive adverb *only*, taking the contextually-restricted set as its argument and being able to ‘see’ the focus semantic value of the proposition. Thus, *dali* operates at the level of a proposition, whereas *li* operates at the level of the alternative set of propositions (C), and combines with each one of the alternatives evoked by focus independently.

7.4.1. Focus on the verb

In sections 7.2 and 7.3 of this chapter, I have already discussed the fact that a focus feature on the verb can be interpreted in two ways. First, it can be interpreted as broad, at the TP level. Second, it can be interpreted as narrow focus, at the V level. In this section, I go back briefly to the different semantic denotations that this ambiguity creates.

7.4.1.1. Broad focus on V

When focus on the verb is interpreted as broad that means that focus features have percolated to the top of the phrase, i.e. TP/IP, as the lexical verb in Bulgarian raises to T/I. The interpretation of the polar interrogative in such a case has already been discussed in section 7.2 above. As I pointed out there, focus percolation to the TP/IP level leads to focusing the whole proposition. What this means is that the set of alternatives evoked by focus will contain contextually salient propositions that can be alternatives of the declarative contained in the

that it cannot combine with a phrase that does not have its semantic value defined, as it does not appear in *wh*-questions. *Li*, however, acts like the silent Q operator in English in that it can combine with a phrase with indefinite semantic value – it can appear in a *wh*-question – and it does not allow a second focused element in the structure. The difference between the silent Q operator in English and *li* is that the latter appears only when focus is present, and Q_F combines independently not with one proposition, but with all propositions elements of the contextually restricted set of alternatives.

question. Unless this is an echo-question or a situation where the hearer has to choose between several questions, the set of alternatives contains only a positive and a negative version of the proposition expressed by the interrogative. The denotation of each alternative is calculated. Since the two alternatives correspond to a positive and a negative version of the same clause, they have equal denotations. The result is that polar questions with broad focus receive a denotation similar to that of neutral *y/n* questions.

7.4.1.2. Narrow focus on V

The second interpretation of a focus feature on the verb comes from the possibility of interpreting such a feature at a lower level (V/VP). I propose that similarly to when focus is interpreted as broad, the denotation is calculated by allowing the focus-sensitive question operator to scope in turn over each alternative within the set evoked by the presence of focus. I repeat in (85) some relevant examples and offer a way of deriving the possible implicatures in this case.

(85) **Narrow focus on the verb**

a) *RISUVA li Ivan vseki den?*

Draw li Ivan every day

‘Does Ivan DRAW every day?’/‘Is it DRAWING what Ivan does every day?’

(possible implicature: there might be something else that Ivan is doing every day)

b) *Dali RISUVA Ivan vseki den?*

Whether draws Ivan every day

‘(I want to know) whether Ivan DRAWS every day.’

(possible implicature: there might be something else that Ivan is doing every day)

As the translation of the examples above show, the interpretation of questions with narrow focus on the verb is different from that of neutral *y/n* questions. On the one hand, the question is oriented only towards that element in the clause that is focused (in this case, the verb). On the other hand, both *li* and *dali*-questions give rise to possible implicatures that there might be a different event in which the subject could be involved. I assume that both characteristics

derive from the presence of focus. First, if there is an overt element in Foc^0 or SpecFocP , the interrogative word *dali* cannot take scope over the whole clause, but only over the element in question. Since *li* is present only when there is a focused element in the clause, it can not take scope over the whole proposition unless the entire clause is focused. Second, the possibility of having an implicature in this case is a result of the denotation of the focused element. In this I closely follow Rooth (1995) in that the denotation of a focused element is a contextually-dependent set of alternatives of the same type as the focused element.

Imagine the following situation. A and B know that Ivan has several favourite activities: drawing, reading and jogging. They also know that Ivan does one of these activities on an everyday basis, but they (or at least A) are not sure exactly which one of them. Then A asks B:

(86) *RISUVA li Ivan vseki den?*

Draw li Ivan every day

‘Does Ivan DRAW every day?’/‘Is it DRAWING what Ivan does every day?’

(possible implicature: there might be something else that Ivan is doing every day: reading or jogging).

Given the above scenario, the set of contextually salient alternatives of *to draw* contains the options of jogging and reading. Therefore, in order to calculate the denotation of the question in (86), one should include all the available alternatives.

(87) Denotation of an interrogative with narrow focus on the verb¹⁵⁸

RISUVA li John vseki den?

Draws li John every day

‘Does John DRAW every day?’/‘Is it DRAWING what John does every day?’

a. $[[\text{li}]] = [[\text{Q}_F]] = \lambda C_{\langle\langle s, t \rangle, t \rangle} \lambda w_s \lambda q_{\langle s, t \rangle} [\exists t. t \in C \wedge t = q \vee t = \neg q]$

b. LF: $[_{CP} \text{Q}_F [_{\text{John}} [_{\text{draws}}]^f \text{every day}]]$

¹⁵⁸ I am using a *li*-question, as the focused element is easier to be located. However, as focused questions of the *dali* and *li*-types work similarly, I assume that (85a) and (85b) have the same denotation.

c. $[[\text{John draws}_F \text{ every day}]]^f = \lambda w. \text{draw every day } (j, w) \vee \lambda w. \text{read every day } (j, w) \vee \lambda w. \text{jog every day } (j, w)$

d. $[[\text{CP}]] (w_0)$
 $= \lambda q [q = \lambda w. \text{draw every day } (j, w) \vee q = \lambda w. \neg \text{draw every day } (j, w) \vee \lambda w. \text{read every day } (j, w) \vee q = \lambda w. \neg \text{read every day } (j, w) \vee \lambda w. \text{jog every day } (j, w) \vee q = \lambda w. \neg \text{jog every day } (j, w)]$

= {that John draws every day, that John does not draw every day, that John reads every day, that John does not read every day, that John jogs every day, that John does not jog every day}

The representation above is not very different from the one used for the denotation of *li*-questions with broad focus on the verb. The biggest difference is that since the verb is focused, it does not denote a single event, but rather a contextually-restricted set of properties of events. As a consequence, the focus-sensitive question operator combines with each and every one of the possible alternative propositions and evaluates them in the actual world. The result is a set of proposition wider than the set of possible answers of neutral questions ($p/\neg p$), as the question operator quantifies over several propositions. A *y/n* question with a narrow focus on the verb thus has the denotation of the sum of the denotations of all of its alternatives.

Lastly, as mentioned earlier, I assume that when focus is present the interrogative word *dali* and the clitic *li* function as the focus-related adverb *only* in English. What this means is that there exists the presupposition that one of the alternatives is true. Such a presupposition gives rise to the possibility of having the implicature, as in (86), when there is a narrow focus on the verb.

7.4.2. Focus on an argument of the verb

I have pointed out already that in polar questions arguments of the verb can also be focused. Following a long-standing tradition in semantics literature in assuming that there exists a difference between informational and contrastive use of focus, I further proposed in section 7.1.5 that focus on verbal arguments is of a different type from focus on the verbs. I assumed that focused NPs in *dali* and *li*-questions are contrastively focused. Based on Rooth's focus semantics, I take contrastive focus to give rise to a set of alternatives of the same semantic

type as the focused element, just as informational focus does. In addition, I proposed that in this particular case, contrastive focus is used when the speaker has the presupposition that an event corresponding to one of the alternatives evoked by focus is true. In this section, I offer a semantic analysis of *y/n* questions in Bulgarian containing a contrastively focused element. The aim of such an analysis is to account for two problems that traditional formal semantics of polar questions does not seem to be able to explain: the fact that there are implicatures that the event in question has taken place and the fact that a negative answer only negates the relation between the focused element and the event, but not that the event has taken place.

The semantic calculation of neutral polar questions was made by embedding the declarative clause corresponding to the interrogative under a question operator.

(88) **Semantic calculation of a neutral polar question**

- a) *Does John draw every day?*
- b) LF: [_{CP} Q [John draws every day]]
- c. [[**John draws every day**]] = $\lambda w.$ draw every day (*j, w*)
- d. [[**Q John draws every day**]] (w_0)
 = λq [$q = \lambda w.$ draw every day (*j, w*) $\vee q = \lambda w.$ \neg draw every day (*j, w*)]
 = {that John draws every day, that John does not draw every day}

The silent question operator (Q) in English is a function that takes as an argument a proposition (John draws every day) and produces property of worlds. Once the world argument is saturated, the result is a set of propositions corresponding to the positive or the negative version of the declarative, depending on which one is true in the actual world.

The calculation of non-neutral *y/n* questions in Bulgarian should be done in the same fashion. The only difference in non-neutral questions is that the proposition embedded under the focus-sensitive question operator contains a focused element. Thus, instead of taking as an argument a proposition, Q_F takes as its argument a contextually-restricted set of propositions (*C*) and combines with each and every one of them, one at a time.

First I turn to how the focus semantic value of a declarative containing focus is calculated.

(89) **Interpretation of a phrase containing a focused NP**

[Ivan]_F risuva vseki den.

Ivan draws every day

‘Ivan is the one who draws every day.’

a) $[[[Ivan]]^f = E$, the set of individuals

b) $[[[[_S Ivan_F draws every day]]]^f = \{\mathbf{draw every day}(x) \mid x \in E\}$, the set of propositions
‘x draws every day.’

c) LF: $[_S [_S [_S Ivan_F draw] \sim C] every day (C)]$

The focus semantic value of the NP *Ivan* is a set of entities (89a). The focus semantic value of the phrase *Ivan draws every day* is a set of propositions of the type *x draws every day* (89b), where *x* is of the same semantic type as *Ivan* (an entity). At LF this set of propositions is restricted by the set of alternatives (C), which is a contextually-restricted subset of the set of alternatives evoked by focus (89c). It makes sure that the resulting set contains the ordinary semantic value of the focused phrase and at least one more element. For example, if the conversation pertains to two students of arts, Ivan and Peter, and their respective frequency of working, the set of alternatives evoked by focus would be: {Ivan draws every day; Peter draws every day}. It would not contain other alternatives of the type *x draws every day*, as other individuals were not contextually present/salient.

Below, I turn to how the semantics of a question containing a focused NP will be represented.

(90) **Denotation of questions containing a focused NP**

a) *Dali IVAN risuva vseki den?* = *IVAN li risuva vseki den?*

Dali Ivan draws every day *Ivan li draws every day*

‘(I want to know) whether IVAN draws every day.’ / ‘(I want to know) whether IVAN is the one who draws every day.’
‘Is Ivan the one who draws every day?’ / ‘Does IVAN draw every day?’

b) LF: $[_S Q_F [Ivan_F draws every day]]$

c. $[[[Ivan_F draws every day]]^f = \{ \lambda w. draw every day(x, w) \mid x \in E \}$

d. $[[[CP]] (w_0) =$

$$\begin{aligned}
&= \lambda q [q = \lambda w. \text{draw every day } (x, w) \vee q = \lambda w. \neg \text{draw every day } (x, w)] \\
&= \{\text{that } x \text{ draws every day, that } x \text{ does not draw every day}\}
\end{aligned}$$

Similarly to English *only*, the focus-sensitive question operator (Q_F) operates at the level of the focus semantic value of the expression with which it combines. In the same way, it takes as its argument the contextually-restricted set of alternatives. The syntactic combination of the phrase containing the focused element (*Ivan_F draws every day*) with the squiggle operator (\sim) and the covert variable C introduces the presupposition that C is a subset of the denotation of $[[\text{Ivan}_F \text{ draws every day}]]^f$ which contains the ordinary semantic value of that phrase and at least one other element. The question operator combines with each of the propositions from the contextually-restricted set and produces property of worlds. As in neutral polar questions, the result is a set of propositions containing the positive and the negative versions of the proposition which is the argument of the question operator. In this case, this is a set of the type: $\{\text{that } x \text{ draws every day, that } x \text{ does not draw every day}\}$, where x is a member of the set of individuals ($x \in E$).

The focus semantic value of the proposition $[[\text{Ivan}_F \text{ draws every day}]]^f$ is of the type x *draws every day* but is contextually restricted. Imagine again, that the conversation was about the two arts students, Ivan and Peter, and their frequency of drawing. In that case, the focus semantic value of $[[\text{Ivan}_F \text{ draws every day}]]^f$ will result in the set of alternatives $\{\text{that Ivan draws every day, that Peter draws every day}\}$. In such a case, the final outcome of the interrogative in (90) is not a set of the type $\{\text{that Ivan draws every day, that Ivan does not draw every day}\}$, but a set of the type $\{\text{that Ivan draws every day, that Ivan does not draw every day, that Peter draws every day, that Peter does not draw every day}\}$.

There is one more important piece of data for deriving the correct semantic denotation of the interrogative in (90). Focus on the NP is not informational but contrastive. What this means is that, in addition to the set of alternatives, it involves that the speaker has a presupposition with regards to whether the event has taken place or not. Since there is no polarity element focused, there is no reason to assume that such a presupposition will have the opposite polarity of that of the question itself. Thus, a question like (90) implies that the speaker believes that $\exists x. x$ draws every day. This automatically reduces the set of possible answers to the question in (90) to $\{\text{that Ivan draws every day; that Peter draws every day}\}$.

Finally, since the combination of the proposition with the squiggle operator and the covert syntactic variable introduces the presupposition that the set of alternatives contains the ordinary semantic value of the proposition and at least one more element, the set of possible answers to the interrogative in (90) will contain the presupposition that if not Ivan, there is someone else who draws every day.

The fact that the set of possible answers contains the propositions corresponding to the set of alternatives evoked by focus and constrained by the context is also supported by the meaning of the answers to focused *y/n* questions. Consider the following scenario:

Paul, Ivan, Mary, Susan and Peter are students of history. Usually their final examinations are oral. Today they have an examination of this type. The teacher is in her office and asks them to enter one by one. The exam has just begun. Paul is in the teacher's office, when Peter's phone rings. In order to not disturb his classmates, Peter moves away to answer the call. A few minutes later he comes back, but he sees only Mary and Susan's purse. He asks then if the one who has entered next is Ivan, thinking that Susan is probably somewhere else since she has left her things. Mary answers him that it is not the case, and that Susan has entered (a) or that nobody has entered (b). The dialogue is as follows:

(91) **Peter:** *Ivan li vlezē?*

Ivan li entered

'Is it Ivan the one who entered?'

Mary (a): *Ne, (Susan).*

'No, (Susan entered).'/ * Nobody entered./ * Both, Susan and Ivan entered.

Mary (b): *Ne, nikoi ne e vlizal.*

No,nobody Neg Aux. entered

'Nobody has entered'

A simple *no* as an answer to Peter's question will involve the implicature that not Ivan but somebody else has entered (thus *No*= *not Ivan* but someone else). The negation can only scope over the element to which *li* is encliticized. If nobody has entered, Mary will need to use answer (b) to express that. In other words, Mary will need to tell Peter that he is wrong in

thinking that someone has entered. In this scenario, the set of possible answers for Peter's question is: {Ivan entered, Ivan didn't enter but Susan did}. The alternatives are not only *Ivan entered/Ivan didn't enter*, but contain the other propositions made available by the focus semantic value of $Ivan_F$ and restricted by the context. The meaning of the answers confirm the idea that speaker presupposes that $\exists x. \text{enter}(x)$. What he wants to verify is which exactly of the possible alternatives is true and whether his expectation about one of these alternatives is right. This is also supported by the fact that a simple negative answer cannot mean that more than one person has entered, which would be equivalent to claim that more than one of the alternatives evoked by focus is true. Therefore, similarly to *only*, the question operator in this case picks only one alternative, seeking the true one.

Consider the same situation with a dialogue in English:

(92) Peter: *Did Ivan go in?*

Mary (a): ??*No, (= Susan did)*. Vs: *No, he didn't, but Susan did.*

Mary (b): *Yes (he did)* = John entered.

Mary (c): *No (he didn't)* = John didn't enter.

As can be observed through the possible answers the denotations of these questions are different in English and Bulgarian. This is due to two reasons: (i) English *y/n* questions do not necessarily involve focus (in contrast to *li*-questions), and (ii) the interrogation in English encompasses the whole proposition, and consequently the set of possible answers contains only $p/\neg p$.

I have mentioned several times that I believe that focused *y/n* questions in Bulgarian involve a presupposition. The fact that the set of possible answers to a *y/n* question of this type contains contextually-restricted alternatives apart of the ordinary semantic value of the proposition, intuitively suggests that this is so. However, it has been argued in the literature that neither does focus itself project a presupposition (Rooth, 1995), nor do questions (Groenendijk & Stokhof, 1984). Why is it then that the combination of the two can involve a presupposition? The answer is probably quite straightforward. On the one hand, it is commonly assumed that if a question involves any type of a presupposition, then this is a presupposition of having an answer. In the case of a neutral question, this would be that the speaker presupposes that an answer could be p or $\neg p$ (as *yes* and *no* are the possible answers

in this case). On the other hand, the syntactic combination of a proposition containing a focused element (ϕ), the squiggle operator (\sim) and the syntactically covert set C introduces the presupposition that the contextually-restricted set of alternatives contains the ordinary semantic value of ϕ $[[\phi]]^0$ and at least one more element. I have argued that in the case of focused polar questions, the set of possible answers is in fact the set of contextually-restricted set of alternatives evoked by focus containing all alternative propositions and their negative counterparts. Given that in a y/n question the speaker presupposes the possibility of p or $\neg p$, it is expected that this is the case in focused questions as well. However, since in this particular case contrastive focus involves the presupposition that the event has taken place; the speaker has the presupposition that if p is not true, than one of its alternatives is. To conclude, the fact that focused questions can involve a presupposition is an outcome of the combination of focus and questions. Questions bring in the presupposition of an answer, on the one hand. Focus, on the other hand –restricted by the context – brings the presupposition that p and at least one more element are possible answers.

8. Conclusions

In this chapter I have sketched a possible semantic analysis of neutral and focused y/n interrogatives in Bulgarian. The analysis is based on two assumptions: first, that the two types of interrogative constructions, *li* and *dali*-questions, have a unified syntactic structure in Bulgarian; second, that Bulgarian has a clause-internal focus projection which can be headed by the interrogative particle *li*. Thus, syntactically, *li* is positioned next to the focused element, but it has the semantics of a focus-sensitive question operator which combines with the set of alternatives evoked by focus. In addition, when focus is present in *dali*-questions, *dali* combines with the set of alternatives evoked by focus via point-wise function argument application, rather than like the silent question operator (Q) in English. Thus, Bulgarian seems to be a language that makes use of two question operators that operate at different levels. While Q operates at the level of a proposition, Q_F operates at the level of the set of alternatives evoked by focus.

I have shown that both *dali* and *li*-questions can be focus-dependent. Further, I have argued that Bulgarian negative y/n questions with focus on negation parallel English interrogatives with inverted negation, and contain a VERUM operator. Given that negation in

Bulgarian is verb-adjacent, the data suggests that negation inversion is not critical for the presence of VERUM in this language, but is triggered by focus on the polarity. Due to the way that negation operates in Bulgarian in most instances, focus on the polarity is associated with focus on the verb phonologically, which results in ambiguous interpretations. I have also proposed a semantic account for polar questions containing focus different from focus on the polarity. I closely follow Rooth's (1995) theory of focus, and I claim that focus in this case, similarly to focus on the polarity, evokes alternatives. The alternatives are contextually-dependent and involve variables of the same semantic type as the focused element. As in neutral interrogatives, the focus-sensitive question operator takes scope over the focused phrase. It operates in the same way as English *only*, taking as its argument the contextually-restricted set of alternatives. Since the focused phrase does not have a unique semantic denotation and it is contextually dependent, the set of possible answers in this case is equivalent to the ordinary semantic value of the phrase and the rest (at least one) of the alternatives evoked by focus. In addition, I argue that *y/n* questions containing a focused NP are instances of contrastive focus. Along with the set of alternatives, this type of focus evokes the presupposition that an event corresponding to one of the alternatives evoked by focus is true.

The topic of questions containing focused elements has not been extensively explored by the semantic literature and the theory on this problem would benefit from further research. Bulgarian represents a case in point that shows that the occurrence of focus in question is not only possible, but also frequent, and has an important impact on the semantics of interrogatives. It also shows that there is an important parallel between polar and constituent questions and that focus-sensitive operators, particles, and adverbs function similarly across different languages. This chapter represents an attempt to offer a possible solution to problems that arise when applying traditional semantic theory to focused questions. Nonetheless, questions with different denotations exist cross-linguistically and this work strives to set the beginning of a cross-linguistic study on this problem.

CHAPTER VI

CONCLUDING REMARKS

The present dissertation has three main objectives: (i) it strives to provide a rich and reliable empirical base for the syntactic analysis of multiple *wh*-questions; (ii) it proposes a unified syntactic derivation for constituent and *y/n*-questions that can accommodate all the data reported in the literature on Bulgarian interrogatives so far; and (iii) it offers a focus-related account for the semantics of polar interrogatives in Bulgarian.

The syntactic structure of multiple *wh*-interrogatives in Slavic has been a recurring topic of discussion since the early 1980s.

(1) **Single *wh*-questions:**

Koji t_i vidja novite modeli?

Who saw._{3p.sg.Aor.} new.pl. def. models

‘Who has seen the new models?’

(2) **Multiple *wh*-questions:**

a) *Koji kakvoj t_i vidja t_j?*

Who what saw._{3p.sg.Aor.}

‘Who saw what?’

b) **Koji t_i vidja kakvo?*

Who saw._{3p.sg.Aor.} what

c) **Kakvoj koj vidja t_j?*

What who saw._{3p.sg.Aor.}

d) *Kakvo_i [na kogo]_j dade Marta t_i t_j?*

What to whom gave._{3p.sg.Aor.} Marta

‘What did Marta give to whom?’

- e) [Na kogo]_j kakvo_i dade Marta t_i t_j?
 To whom what gave._{3p sg Aor} Marta
 ‘What did Marta give to whom?’

As illustrated in examples (1) and (2), Bulgarian is a language that exhibits obligatory *wh*-fronting [compare (2a) and (2b)], where the Superiority restriction is closely observed [compare (2a) and (2c)] when the higher *wh*-element is animate. However, when the higher *wh*-word is inanimate and the lower one is animate, the order of *wh*-elements is free [compare (2d) and (2e)].

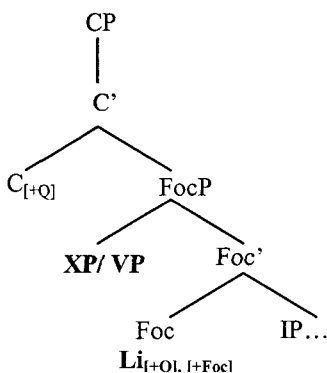
The particular landing site(s) for multiple *wh*-fronting as well as the order of *wh*-elements are two of the main issues upon which generative linguists have never reached full agreement. Multiple syntactic accounts, the most relevant and influential of which have been presented and discussed in Chapter 2, have associated *wh*-movement in Bulgarian with factors like Animacy (Rudin, 1986, 1988; Billings and Rudin, 1994), Focus fronting (Izvorski, 1995; Bošković, 1998; Lambova, 2001, 2004), Agentivity (Pesetsky, 2000) or the Principle of Minimal Compliance (Richards, 1997).

Based on the data discussed in the literature and on the proposals put forward by Izvorski (1995) and Lambova (2001, 2004), I offer in Chapter 2 a unified syntactic derivation for constituent and polar questions in Bulgarian.

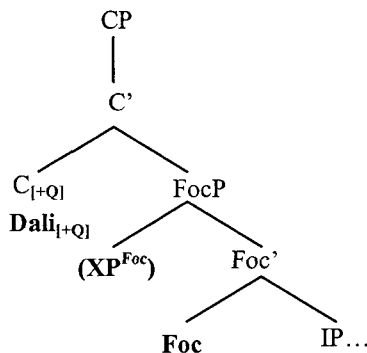
(3) **Proposed structure of Bulgarian interrogatives:**

Polar questions

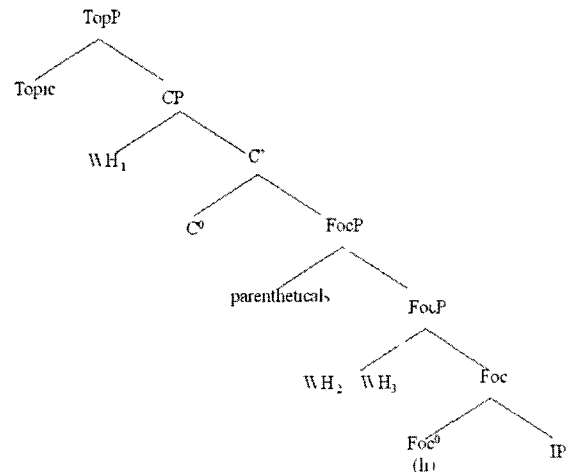
a) Li-questions



b) Dali- questions



c) Constituent questions



The novelty of the structure presented in (3) consists in the fact that *wh*-fronting is analyzed as focus-fronting and that the structure contains a clause-internal focus projection, headed by the interrogative particle *li*. According to this analysis, *wh*-movement (*wh*-raising to SpecCP) occurs only after focus-fronting (*wh*-fronting to SpecFocP), and only the highest *wh*-element can raise to the traditionally assumed landing site for *wh*-fronting, SpecCP. The proposed structure has the advantage of allowing the split of the *wh*-cluster; it also captures the proposal that *li*-questions are mandatorily related to focus; shows that the two interrogative elements *dali* and *li* have different characteristics; and accounts for the fact that only *li*, but not *dali* can appear in *wh*-questions. Regarding the semantics of polar questions, the structure proposed in chapter 2 (shown in (3) above) predicts that *dali* questions parallel English *y/n* interrogatives, as *dali* is regarded as an overt version of the silent question operator Q in English. *Li*-questions, for their part, are expected to have different semantics, as the interrogative particle *li* has a double nature. Syntactically, *li* heads the focus projection below CP. Semantically, *li* acts as a focus-sensitive question operator that operates at the level of focus alternatives (similarly to English *only*).

The syntactic derivation proposed in chapter 2 was put to the test in chapters 3 and 4. Through two series of experiments, I aimed to reveal the preferred order of *wh*-elements and to verify whether the syntactic structure proposed in chapter 2 corresponded to native speakers' judgments.

The results of the two experiments were highly consistent and suggested that the order of *wh*-words in Bulgarian cannot be defined exclusively by one single syntactic principle, such as Superiority. The data collected lent support to the proposal that in addition to the Superiority constraint, *wh*-words in Bulgarian obey an animacy hierarchy, according to which animate *wh*-elements should appear before non-animate ones. The close interaction between Superiority and Animacy was demonstrated by the fact that when the higher *wh*-word was animate, Superiority was strictly obeyed. In contrast, when the higher *wh*-element was inanimate, Superiority was easily violated. The same pattern was observed in filler sentences, which also supported Izvorski's (1995) claim that the verb in constituent questions does not raise to C, but remains in T, and that the subject is usually within the VP, moving to SpecTP only if focused. In addition, filler sentences containing focused or topicalized elements within a constituent question containing *li* and filler sentences with a split *wh*-cluster indicated that *wh*-elements do not have to remain in the same syntactic position, but they can split after the

first *wh*-word. Overall, I interpreted the results from the first experiment to be a byproduct of two main ideas: first, *wh*-elements are focal in their nature, and second, *wh*-phrases do not occupy the same syntactic position. The data collected through the experiment strongly suggested that the first animate *wh*-word raises to SpecCP, leaving behind the rest of the *wh*-elements in SpecFocP. Thus, the complementizer phrase in Bulgarian must be of the type “attract-one,” whereas the focus phrase must be of the type “attract-all.”

The results obtained in the second experiment further supported the conclusions drawn on the basis of the data collected in experiment 1. Again, as in the first sentence-judgment task, native speakers rated higher those structures where the Superiority constraint was obeyed (in the cases when the higher *wh*-element was an animate one) or those where the animate *wh*-word preceded non-animate ones (in the cases when the higher *wh*-element was inanimate). Again, surprisingly the combination of two inanimate *wh*-words did not obey the Superiority requirement. The Superiority violating version of the sentences was not preferred to the Superiority obeying one, but the ratings of the two did not differ significantly. Such close ratings cannot be explained either as a result of inherent focus being on the lower *wh*-element, or as a result of an interpretation of the lower *wh*-word as d-linked. Therefore, I propose that this result is a direct outcome of the syntactic expression of the animacy hierarchy. In other words, only animate *wh*-words are allowed to raise to the specifier position of CP and not inanimate ones. Inanimate *wh*-words remain in SpecFocP and since their fronting is a result of their own focus feature, their order is irrelevant to Superiority.

A novel feature of the second experiment was the addition of items where the morphological accusative *wh*-form *whom* (*kogo*) was substituted by its nominative-looking morphological counterpart *who* (*koj*), as is done frequently in colloquial register.

(4) **Accusative-nominative substitution:**

- a) *Kakvo kogo udari?*
 What whom.Acc. hit_{3p.sg.Aor.}
 ‘What hit whom?’
- b) *Kakvo koj udari?*
 What who.Nom. hit_{3p.sg.Aor.}
 ‘What hit who?’

The replacement illustrated in (4) above aimed to confirm or disprove the possibility that the form *koj* (who), which usually corresponds to the external agentive argument, has a special status among the paradigm of *wh*-forms. Such a preference was refuted, on the basis that items containing the nonstandard form (4b) were rated similarly or worse to those containing the accusative one (4a) in both Superiority obeying and Superiority violating versions of the sentences. Thus, no special preference for the form *koj*, ‘who’, to appear first was systematically observed.

Another extension of the second experiment was the addition of conditions containing the interrogative form *kak* (how) which aimed to examine whether the length of the *wh*-form could influence the preferred order of *wh*-words.

(5) **External animate argument & adjunct – how**

Koji kak_j t_i e naučil za тази работа t_j?

Who how Aux. know_{p.p.} about this job

‘Who knew about this job and how?’ / ‘How did every candidate know about this job?’

As in the accusative-nonstandard substitution, such a preference was not observed. Thus, the data collected through the changes in the second experiment also confirmed the conclusion that there are two major principles defining the order of *wh*-elements in Bulgarian: the Superiority constraint and the animacy-based hierarchy.

Overall, the results of the two experimental studies presented in chapters 3 and 4 strongly supported the syntactic structure outlined in chapter 2. The collected data also brought forth evidence in favour of the conclusion that Bulgarian is among the languages where the Superiority restriction operates coupled to an animacy-based hierarchy among the interrogative elements. The results from both experiments also suggested that such a hierarchy is syntactically encoded with only animate *wh*-elements raising to SpecCP. The behavior associated with the fillers in both experimental studies reported in this work suggests that *wh*-movement in Bulgarian does not proceed in one step, but that all *wh*-elements first move to SpecFocP to check their focus feature and only the highest animate *wh*-element raises to SpecCP. Thus, the focus phrase in this language is of the type attract-all, whereas the complementizer phrase can have only one *wh*-element in its specifier, as in languages where multiple *wh*-fronting is not observed. Lastly, the data supported the idea that the syntactic

structure of *wh*-questions in Bulgarian contains a clause-internal focus projection, situated below C; that there is no T-to C movement in *wh*-questions; and that subjects raise out of the VP only if focused. The results of the second experiment also supported Lambova's (2001, 2004) proposal that *wh*-words in Bulgarian do not move to the same final projection and that the *wh*-cluster can be split by intervening adverbials and parentheticals, adjoined to SpecFocP.

In sum, the data collected through the two experiments strongly supports the unified structure for interrogatives outlined in chapter 2 and a close relation between *wh*-words and focus phrases. Thus, chapter 5 of this dissertation is dedicated to a formal semantic analysis of polar interrogatives in Bulgarian involving focus as one of its essential dimensions. To the best of my knowledge, the semantics of *y/n* questions in Bulgarian has not been discussed in detail and in earlier work their connection with focus was described mainly in the syntactic literature, and therefore, chapter 5 serves a double purpose. On the one hand, it aims to present more detailed data relevant to the adequate semantic study of Bulgarian *y/n* questions. On the other hand, the chapter sketches a tentative formal semantic analysis of polar questions based on what has been proposed for English by Han and Romero (2001) and Romero and Han (2004).

The theory of focus interpretation used for developing the proposal is the one put forward by Rooth (1985, 1992, 1995) where focus evokes sets of contextually dependent alternatives. Differently from Rooth's approach, however, I assume that there is a difference between contrastive and information focus. Such a contrast is easily observed through the different behavior of verbs and their arguments when combining with *li* in conditional clauses. Crucially, when the focus-sensitive question operator *li* is adjoined to a verb, focus is used informationally. In contrast, when *li* is adjoined to some of the verb's arguments, focus is used contrastively and brings the presupposition that one of the members of the set of alternatives evoked by focus is true.

In order to develop an adequate semantics of *y/n* questions in Bulgarian, I distinguish two types of interrogatives in this proposal: neutral and focused *y/n* questions. Syntactically, the analysis is based on the assumption that the two interrogative elements in Bulgarian – *dali* and *li* (see structure shown in (3a-b) above) – occupy different syntactic positions: head of CP and head of FocP, respectively. Semantically, the proposal is based on the idea that Bulgarian is a language that takes advantage of two types of question operators that operate at different levels. The first question operator, Q (*dali*), is an operator that typically appears in neutral *y/n*

questions, combines with a proposition, and produces a property of propositions. When Q appears in a focused interrogative, it combines with the set of alternatives evoked by focus via point-wise function argument application. The second question operator, Q_F (*li*), is focus-sensitive, appears only in focused questions and operates at the level of the set of alternatives evoked by the presence of focus, in a similar fashion to English *only*.

(6) **Neutral and focused *dali*- interrogatives:**

a) *Dali Ivan risuva vseki den?* *Neutral question, dali = Q*
 Whether *Ivan* paints every day
 ‘(I want to know) whether Ivan paints every day.’ / ‘Does Ivan paint every day?’

b) *VSEKI DEN li risuva Ivan?* *Focused question, li = Q_F*
 Every day Q paints Ivan
 ‘(I want to know) whether Ivan paints *EVERY DAY*.’ / ‘Does Ivan paint *EVERY DAY*?’
 (possible implicature: Ivan paints with a different regularity)

Crucially, the question operator Q (6a) combines with a proposition *p*, which is the proposition expressed by the interrogative. The result of such a semantic combination is a partition of the logical space of the type $p / \neg p$. In contrast, the focus-sensitive question operator Q_F (6b) takes as an argument the contextually-restricted set of alternatives evoked by the presence of focus (e.g. *Ivan paints every day = p*, *Ivan paints every week = q*, *Ivan paints once a month = r*, etc. depending on the context). Thus, Q_F combines with all the members of the set of alternatives (*p*, *q*, *r*), one at a time. In addition, when the focused element is different from the verb, focus is used contrastively, thus giving raise to a presupposition that one of the propositions members of the set of alternatives (*p*, *q*, *r*) is true. In such a case, when the answer to the question is negative, there exists an implicature that one of the other alternatives is true.

In chapter 5, I also argue that *y/n* interrogatives with focus on the negation (9b) in Bulgarian parallel their English counterparts when negation is preposed (8).

(7) **English polar questions with non-inverted negation**¹⁵⁹:

Did John not drink coffee or tea? (y/n, alt-reading, non-biased interpretation)

(8) **English polar questions with inverted negation:**

Didn't John drink coffee or tea? (y/n reading, biased interpretation)

(9) **Neutral vs. focused dali-questions:**

a) *Dali Ivan (ne) pie kafe ili čaj?*

Dali Ivan (Neg) drink._{3p.sg.pres.} coffee or tea

'Is Ivan (not) drinking coffee or tea?'

(y/n, alt-reading; non- biased interpretation)

b) *Dali NE PIE Ivan kafe ili čaj?*

Dali Neg drink._{3p.sg. pres.} Ivan coffee or tea

'Isn't Ivan drinking coffee or tea?'

(only y/n reading; biased interpretation)

(10) **Li- questions with preposed negation**

a) *Ivan ne pie kafe ili čaj li?*

Ivan Neg drink._{3p.sg.pres.} coffee or tea li

'Is it the case that Ivan does not drink coffee or tea?'

(only y/n reading; non-biased interpretation)

b) *Ne pie li Ivan kafe?*

Neg drinks li Ivan coffee

'Doesn't John drink coffee?'

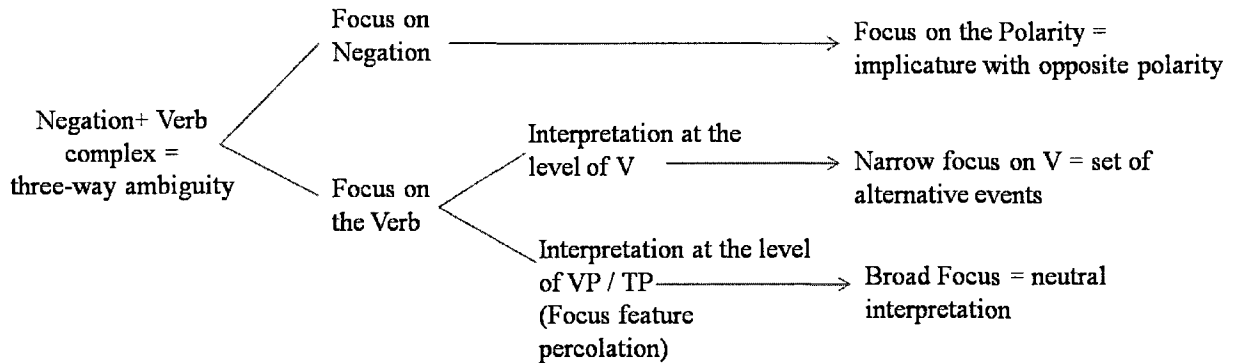
(only y/n reading; biased interpretation)

In contrast with English, however, focus on the polarity must not necessarily be present when negation is inverted in Bulgarian, as sentential negation is verb-adjacent [compare (10a) to (10b)]. Crucially, focus on the polarity in Bulgarian can be observed where there is a

¹⁵⁹ H&R, 2001: 262-263, ex. (4) and (5).

functional element in T that can bear focus and be stressed. Given that in most instances focus on the polarity in Bulgarian is phonologically associated with focus on the verb, I account for the three-way ambiguous interpretations of negative interrogatives.

(11) **Ambiguity in negative *y/n* questions with focus on the negation + V complex:**



First, focus on the negation + verb complex can be interpreted as focus on the polarity (negation). In such a case, the denotation of the negative interrogative is equivalent to that of a *y/n* question with inverted negation in English. Second, focus on the negation + verb complex can be interpreted as broad focus on the verb. If so, the interpretation of the negative interrogative is similar to that of neutral negative *y/n* questions in English. Third, focus on the negation + verb complex can be interpreted as narrow focus on the verb. In such a case, an implicature that another member of the contextually restricted set of alternatives is true is possible.

The semantic proposal developed in chapter 5 does not intend to provide an exhaustive and detailed semantics of all possible types of polar interrogatives in Bulgarian. In fact, this topic has not been systematically explored and still needs further examination. However, the case of Bulgarian, and in particular *li*-questions, represents an important illustration of the close interconnection between *y/n* questions, constituent questions and focus. It also demonstrates the important role that focus plays in relation with interrogatives and in determining their semantic characteristics. What is more, the proposal developed in this chapter reveals how focus-sensitive operators can function similarly across different languages. Thus, the chapter is an attempt to provide a solution to problems that arise when applying traditional semantic theory to focused questions.

To conclude, this dissertation presents a case in point in Bulgarian, a Slavic language that exhibits multiple *wh*-fronting and polar questions with interrogative particles that are both closely related to focus. The syntactic part of this dissertation argues in favour of the long-debated problem that one functional projection (CP) is not enough to cover all discourse-oriented and pragmatically-related properties of a sentence. It supports the view that there is a need for at least two functional projections dedicated to this purpose: a clause-typing one (CP) that can also host discourse prominent/hierarchically higher (animate) constituents and a lower focus projection that is the primary landing site for *wh*-fronting in Bulgarian and also the host for focused constituents. The semantic dimension of the present study aims to reveal how focus determines the interpretation of interrogatives. It strives to show that not only can traditional formal semantics of questions not be applied to focused questions, but it also fails to generate the right predictions in many cases when interrogatives receive a neutral interpretation. Thus, both the syntactic structure of multiple *wh*-interrogatives as viewed by traditional generative grammar and the semantics of interrogatives needs to be revised.

As a whole, this dissertation contends that focus plays an important role in the formation of interrogatives in general and poses the problem as to whether and how such a relation is observed cross-linguistically and whether such a connection is a general property of natural language. Problems stemming from the influence of focus in questions exist cross-linguistically and this work strives to set the beginning of a cross-linguistic study on this topic.

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