Evidentiality and mood: 
Grammatical expressions of epistemic modality in Bulgarian

Dissertation

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By
Anastasia Smirnova, M.A.

Graduate Program in Linguistics

The Ohio State University

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Dissertation Committee:
Brian Joseph, co-advisor
Judith Tonhauser, co-advisor
Craige Roberts
This dissertation is a case study of two grammatical categories, evidentiality and mood. I argue that evidentiality and mood are grammatical expressions of epistemic modality and have an epistemic modal component as part of their meanings. While the empirical foundation for this work is data from Bulgarian, my analysis has a number of empirical and theoretical consequences for the previous work on evidentiality and mood in the formal semantics literature.

Evidentiality is traditionally analyzed as a grammatical category that encodes information sources (Aikhenvald 2004). I show that the Bulgarian evidential has richer meaning: not only does it express information source, but also it has a temporal and a modal component. With respect to the information source, the Bulgarian evidential is compatible with a variety of evidential meanings, i.e. direct, inferential, and reportative, as long as the speaker has concrete perceivable evidence (as opposed to evidence based on a mental activity). With respect to epistemic commitment, the construction has different felicity conditions depending on the context: the speaker must be committed to the truth of the proposition in the scope of the evidential in a direct/inferential evidential context, but not in a reportative context. Finally, the distribution of the evidential is sensitive to the temporal relations specified in the context. In the previous literature, the Bulgarian evidential is analyzed as encoding indirect sources of information; no mention
is made of its temporal meaning (Izvorski 1997, Sauerland and Schenner 2007). I propose a uniform semantic analysis of the Bulgarian evidential, which incorporates both a temporal and a modal component, and accounts for the full range of evidential meanings. The central aspect of the analysis is the assumption that the proposition in the scope of the evidential is evaluated with respect to different sets of worlds, depending on the discourse context: the belief worlds of the speaker in inferential/direct evidential contexts, and the belief worlds of the original reporter in reportative contexts.

My analysis of mood explains the distribution of the subjunctive and the indicative in Bulgarian as being dependent on the epistemic commitment of the attitude holder (cf. Giannakidou 1998). Previous analyses attribute mood distribution to semantic properties of the selecting verb alone (cf. Farkas 1992, Villalta 2008). These analyses cannot be extended to Bulgarian, where the distribution of mood is sensitive not only to the semantics of matrix verbs, but also to context. This is particularly clear in cases when the same verb can select both the subjunctive and the indicative, and the choice of mood correlates with the attitude holder’s epistemic commitment. The indicative is selected iff the attitude holder is strongly committed to the truth/falsity of the proposition expressed by the complement clause. The subjunctive is selected iff the attitude holder has a weaker epistemic commitment. My formal analysis uses the tools from the analysis of modals (Kratzer 1979) and specifies how the meaning of the matrix propositional attitude verb interacts with the meaning of mood in the embedded clause. This is the first formal semantic analysis of mood in Bulgarian.
To my family
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VITA

June 2002 ………………….. B.A. + M.A. Psychology, Sofia University, Bulgaria

June 2005 ………………….. M.A. Slavic Linguistics, The Ohio State University

September 2005-March 2010…… Graduate Research Associate and Graduate Teaching Associate, Department of Linguistics, The Ohio State University

April 2010-March 2011 …………. Presidential fellow, The Ohio State University

March 2011-June 2011 …………. Graduate Teaching Associate, Department of Linguistics, The Ohio State University

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LIST OF SYMBOLS AND ABBREVIATIONS

ACC=Accusative case
ACTIVE = Active participle
EAT= Evidence Acquisition Time
EMPH=Emphatic
FEM = Feminine gender
FUT=Future marker
IMPERF=Imperfective Aspect
NOT=Negation
NPAST=Non-past
PASS=Passive voice
PAST=Past tense
PAST = Past stem participial form
PERF=Perfective aspect
PRES=Present tense
PRES=Present stem participial form
PLE=Past participle
SG=Singular
ST=Speech Time

xix
PL = Plural

REFL = Reflexive marker

RT = Reference Time

SUBJ = Subjunctive marker

1C = 1st conjugation

2nd IMPERF = Secondary imperfective
CHAPTER 1: INTRODUCTION

1.1 Objectives

This dissertation is about grammatical means that express epistemic modality in natural language. Modality in general can be defined as “the linguistic phenomenon whereby grammar allows one to say things about, or on the basis of situations which need not be real” (Portner 2009:1). Epistemic modality can be understood in terms of speakers’ assessment of information in light of what they know, whereby situations are presented as e.g. certain, possible, or (un)likely to occur.

All languages are equipped with means that allow speakers to express different degrees of certainty, i.e. epistemic commitment towards the information they exchange in discourse. However, languages use a variety of different linguistic devices to express this type of meaning. Intonational contour (e.g. Hirschberg and Ward 1984, Ward and Hirschberg 1985), individual words such as likely and modal verbs such as must (e.g. Kratzer 1991, von Fintel and Iatridou 2008), as well as grammatical categories such as evidentiality (e.g. Izvorski 1997) are examples of linguistic means that express epistemic modality. While modal verbs, such as e.g. must and ought to, have received a significant amount of attention in the theoretical literature (cf. Kratzer 1991, Condoravdi 2002, von Fintel and Iatridou 2008), grammatical expressions of epistemic modality have only
recently became a subject of linguistic investigation in the formal semantic literature (cf. Izvorski 1997, Matthewson et al. 2008 on evidentials). The main focus of this dissertation is the meaning and function of grammatical categories that express epistemic commitment. I specifically focus on the meaning of two grammatical categories, evidentiality and mood in Bulgarian, both of which, I argue, have an epistemic modal component.

1.2 Scope and findings

Evidentiality and mood present a particular interest for a linguistic investigation. Understanding what speakers convey when they specify source of information (in the case of evidential constructions), or choose one mood over the other (in the case of mood) has been a subject of an extensive investigation within the field of linguistics (cf. Jacobson 1932, de Haan 1988, Aikhenvald 2004 on evidentiality, Jesperson 1924, Palmer 2001 on mood). New work brings novel perspectives on what these categories mean. For example, while evidentiality has been traditionally understood as a grammatical marker of source of information (e.g. Jacobson 1957, de Haan 1988, Aikhenvald 2004), recent studies have suggested that evidentiality in many different languages expresses not only source of information but also speakers’ assessment of information in terms of likelihood or epistemic modality (cf. Izvorski 1997 on Bulgarian, McCready and Ogata 2007 on Japanese, Matthewson et al. 2008, Matthewson 2010a on St’át’imcs,). Similarly, while the subjunctive and the indicative mood are traditionally understood as encoding the opposition between real situation (reals) and non-actual situations (irreals), respectively, (cf. Givón
1994), recent studies show that the distribution of mood depends on epistemic agents’ belief states (cf. Giannakidou 1998, 2009 on Greek, Quer 1998 on Catalan). In this dissertation I provide evidence that shows that in Bulgarian evidentiality and mood are grammatical elements that have an epistemic modal component. From the perspective of theoretical linguistics, conceptualization of evidentiality and mood as means for expressing epistemic modality raises the question of how these categories should be formally analyzed. In what follows, I discuss the findings and the details of the formal analysis of evidentiality (section 1.2.1) and mood (section 1.2.2) in Bulgarian. These two phenomena are discussed in detail in part 1 and part 2 of this dissertation, respectively.

1.2.1 Evidentiality

Evidentials are often defined as grammatical markers that specify “the alleged source of information about the narrated event” (Jacobson 1957:4). While evidentiality is commonly conceptualized as a grammatical category that marks an information source, i.e. direct perception, report, or inference (e.g. Willett 1988, de Haan 1999, Aikhenvald 2004), it has been observed that evidential markers in many languages also carry information about the speakers’ degrees of certainty or attitude towards the truth of the proposition expressed by an evidential sentence (e.g. Friedman 1986, 2004, Mithun 1986, Izvorski 1997, Faller 2002, McCready & Ogata 2006, Matthewson et al. 2008). That the grammatical expressions of information sources carry information about the speakers’ epistemic commitment is not surprising. Naturally, information heard from others is less reliable than information observed directly and, therefore, would entail a weaker
commitment to the truth on the speaker’s part than the latter. While the existence of such a dependency is widely acknowledged in the literature – this observation motivated evidential hierarchies, whereby information is ranked in terms of its reliability depending on the information source (cf. Barnes 1984, Oswalt 1986, Willett 1988, de Haan 1998, Faller 2002) – the exact nature of the relation between information sources and the speaker’s epistemic commitment is an open question and a matter of an intense theoretical debate. For example, de Haan (1998), (1999) and Faller (2002) argue that information about the strength of epistemic commitment can be pragmatically derived, and thus need not be encoded in the meaning of the evidential. On the other hand, Matthewson (2010a) strongly advocates the alternative approach and proposes that all evidentials encode the speaker’s degree of commitment, which automatically places evidentials within the realm of epistemic modality (cf. also Portner 2009).

The theoretical question about the status of evidentiality with respect to epistemic modality can be addressed by detailed studies of evidentiality in typologically diverse languages. Bulgarian presents a particularly interesting case in the context of this theoretical discussion. The two existing semantic analyses of evidentiality in Bulgarian make conflicting claims as to the meaning of the Bulgarian evidential construction. In her classic paper, Izvorski (1997) analyzes the Bulgarian evidential on a par with epistemic modals, an analysis that inspired an intense theoretical debate. Izvorski’s (1997) analysis has been recently challenged by Sauerland and Schenner (2007), who propose that the evidential construction in Bulgarian encodes information source only, and lacks any modal component whatsoever. In the first part of the dissertation I present an analysis of
the evidential system in Bulgarian, which defends Izvorski’s (1997) insight, and shows that evidentiality in Bulgarian belongs to the domain of epistemic modality. Besides its contribution to the theoretical debate about the status of evidentiality, my analysis has a number of theoretical and empirical implications.

First and foremost, my analysis differs from the previous work on evidentiality in Bulgarian in its empirical scope. I consider factors that have not been previously discussed in the literature on the Bulgarian evidential, such as the temporal meaning of the evidential, its compatibility with direct information sources, and the relation between mirativity and temporality. This wider scope yields new empirical generalizations. Consequently, the formal analysis I propose has a different formal implementation from Izvorski’s (1997) proposal. In its core, the analysis shows that the Bulgarian evidential construction encodes three types of semantic information: (i) information about the type of evidence, or source; (ii) information about epistemic commitment; (iii) temporal information. This information is encoded by different components of the evidential construction, specifically, by tense, aspect, and the evidential operator, which combine in a compositional manner to yield evidential meaning.

Regarding the source of information, I show that the Bulgarian evidential construction encodes direct, indirect, and reportative information sources. Previous analyses characterize the Bulgarian evidential as encoding indirect information sources, a category which subsumes inference and report (Izvorski 1997, Sauerland and Schenner 2007), and thus they cannot account for the distribution of the evidential in direct evidential contexts.
With respect to epistemic commitment, I show that the distribution of the Bulgarian evidential is sensitive to what the relevant epistemic agent believes. In inferential/direct evidential contexts, the proposition \( p \) in the scope of the evidential is evaluated with respect to the belief worlds of the speaker. If the speaker is uncertain whether \( p \) is true, or if she believes that \( p \) is false, the evidential sentence is infelicitous. On the other hand, in reportative evidential contexts, the speaker can assert \( p \) even if she believes that \( p \) is false. I propose that in reportative evidential contexts, the proposition is evaluated not with respect to the belief worlds of the speaker, but rather those of the original reporter. Such a conceptualization allows for a uniform semantic analysis of the evidential construction. I argue that the evidential operator, which is part of the evidential construction, specifies that the proposition in the scope of the evidential is true in all the belief worlds of the relevant epistemic agent. Whose belief worlds, the belief worlds of the speaker or those of the original reporter, are taken into consideration, depends on the context – the inferential/direct and reportative, respectively. In Izvorski’s analysis the proposition in the scope of the evidential is interpreted with respect to the speaker’s belief worlds. Such an analysis, however, cannot easily account for reports of false statements in reportative evidential contexts.

Besides a modal component, evidential sentences also encode temporal information. I show that the distribution of the Bulgarian evidential is sensitive to the temporal relations specified in the context. In the proposed analysis, the evidential construction specifies the temporal relation between the time at which the speaker has acquired the evidence for the proposition she communicates and the time at which she
makes the utterance. This idea is based on Lee’s (2010) analysis of evidentiality in
Korean. Moreover, I show that the tense and aspect of the evidential form contribute
additional temporal information. Jointly, the temporal information specified by the
evidential, as well as the contribution of tense and aspect, determines the temporal
location of the eventuality with respect to the time of the utterance. The temporal
contribution of the Bulgarian evidential has not been previously discussed in the
literature.

Finally, the formal analysis presented in part 1 has implications for the
typological classification of evidential systems. On a more general level, it shows that the
conceptualization of evidentiality as a grammatical category encoding an information
source is too narrow, and that it should be expanded to include temporal information as
well the modal information. For Bulgarian, specifically, I argue that the evidential system
cannot be understood in terms of the traditional inventory of information sources,
discussed in Willett (1988) and Aikhenvald (2004). I argue that the opposition between
evidential sentences and sentences with unmarked indicative verb forms, previously
analyzed as encoding the difference between indirect vs. direct information sources
(Izvorski 1997, Sauerland and Schenner 2007), is best understood in terms of the strength
of epistemic commitment (cf. Aronson 1967, Friedman 1994). The indicative verb forms
in matrix clauses commit the speaker to knowledge that the proposition \( p \) expressed by
the indicative construction is true. The evidential forms express weaker degrees of
commitment, which range from the belief that \( p \) is true, in the case of inferential and
direct evidential sentences, to non-commitment on the speaker’s part, in reportative
contexts. This analysis suggests that the strength of epistemic commitment is a valid criterion for the classification of evidential systems and presents additional evidence that evidentials belong to the domain of epistemic modality proper.

1.2.2 Mood

In the second part of this dissertation, I analyze the distribution of the indicative and subjunctive moods in Bulgarian. I focus on the distribution of the indicative and subjunctive moods in complements of propositional attitude verbs, i.e. verbs that specify the relation between the attitude holder and the proposition expressed by the complement clause, such as iskam ‘want’, spomnjam si ‘remember’, mislja ‘think’, etc. The main question for the analysis of mood is what factors, i.e. semantic, syntactic or pragmatic, trigger the selection of the particular type of complementation, i.e. the subjunctive or the indicative. I argue that the mood distribution in Bulgarian depends crucially on the epistemic commitment of the attitude holder. Thus, similarly to the evidential system, the mood system in Bulgarian encodes information about the strength of epistemic commitment.

In the previous literature, different semantic properties of the embedding environment are taken to be responsible for the selection of indicative as opposed to subjunctive complements cross-linguistically. Thus, within the realis/irrealis approach (cf. Givón 1994), the main factor responsible for mood selection is whether the proposition denoted by the embedded clause refers to a real (realis) or a hypothetical (irrealis) situation. Proponents of the analysis of mood in terms of assertion (Bolinger 1968,
Hooper 1975, Klein 1975, Bybee et al. 1992, Lunn 1995, Palmer 2001) propose that the main criterion that determines the pattern of mood selection is the discourse status of the information expressed by the complement, i.e. asserted vs. presupposed. Within this framework, whether the information is asserted or not depends on the semantics of main verbs, which are divided into assertive and non-assertive predicates. Most recently, Villalta (2008) proposed that gradability, i.e. the ability of a predicate to encode a semantic scale on which the relevant contextual alternatives can be ranked, is responsible for the mood selection in Spanish.

My analysis is close in spirit to analyses that view mood as a phenomenon dependent on the epistemic commitment of the attitude holder, in particular, Giannakidou’s (1998), (2009) veridicality-based analysis of mood in Greek, and Quer’s (1998) analysis of mood in Catalan (cf. also Rivero 1971, Farkas 1992 on the observation that the choice of mood correlates with the speaker’s epistemic commitment). However, my analysis crucially differs from the previous proposals in the following respect. The common feature of the previous analyses is the idea that the distribution of mood is determined by the semantics of the matrix verb. However, in Bulgarian, mood distribution is also sensitive to the semantic context. This is particularly clear in cases of the same verb being compatible with both the subjunctive and the indicative mood in the complement clause. Bulgarian has a robust pattern of the double mood selection: both moods are possible in complements of perception verbs such as čuvam ‘hear’, some epistemic assessment verbs such as spomnjam si ‘remember’, and negated epistemic and factive verbs such as ne vjarvam ‘not believe’. Such constructions present a particular
interest for a semantic analysis: with the main verb being the same, they allow us to identify the role of other factors that might affect mood selection. I show that the context, and, specifically, its effect on the epistemic commitment of the attitude holder, is crucially responsible for mood distribution in Bulgarian. The subjunctive is selected iff the attitude holder is weakly committed to the truth or falsity of the proposition expressed by the complement clause. The indicative, on the other hand, is selected iff the attitude holder has a strong epistemic commitment to the truth/falsity of the proposition expressed by the complement. Whether the construction commits the epistemic agent to the truth or falsity of the proposition depends on the lexical semantics of the matrix clause predicate, as well as on the presence/absence of negation on the main verb. For example, verbs such as s’amnjavam se ‘doubt’ and l’aža ‘lie’, signal that the proposition in their scope is false, while verbs such as vjarvam ‘believe’ and radvam se ‘be happy’ signal a positive commitment.

My formal analysis of mood distribution is based on Matthewson’s (2010b) analysis of the subjunctive in St’át’imcets, and is conceptually close to the analysis of weak modals in von Fintel and Iatridou (2008). Specifically, I account for the observation that the subjunctive expresses a weaker epistemic commitment compared to the indicative with the assumption that the subjunctive and the indicative have different effect on the domain of quantification with respect to which the proposition expressed by the embedded clause is evaluated. Following Matthewson (2010b), I assume that a weaker epistemic commitment associated with the subjunctive is due to the fact that in constructions with subjunctive complements the proposition expressed by the
complement is interpreted with respect to a more restricted or smaller set of worlds compared to the indicative. This effect is achieved by the meaning contribution of the subjunctive mood. I assume, following Matthewson (2010b), that the subjunctive presupposes a restriction on the domain of quantification: it requires it to be non-homogenous; some worlds in this set are \( p \) worlds, i.e. the worlds in which the proposition \( p \) expressed by the embedded clause is true, and some worlds are not-\( p \) worlds (\( \neg p \)), i.e. the worlds in which the proposition \( p \) is false. Since the original set is non-homogenous, the proposition is evaluated with respect to a smaller set, the set of best worlds, derived from the original non-homogenous set by the application of the ordering source. The ordering source is part of the meaning of the matrix propositional attitude verb; its meaning depends on the semantics of individual verbs. The indicative operator, on the other hand, presupposes that all worlds in the domain of evaluation form a homogenous set: either all worlds are \( p \) worlds, or all worlds are not-\( p \) worlds. Thus, in constructions with indicative complements, the domain of evaluation is not restricted, which accounts for a stronger epistemic commitment.

According to the formal analysis I propose, the meanings of sentences with matrix propositional attitude verbs and clausal complements depend on two components: (i) the meaning of the embedding propositional attitude verb, and (ii) the meaning of mood. With respect to the meaning of propositional attitude verbs, I follow Heim (1992), von Fintel (1999) and Villalta (2008) and analyze them using the formal semantic tools developed for the analysis of epistemic modals (cf. Kratzer 1977, 1981, 1991). Specifically, I assume that propositional attitude verbs encode as part of their meaning a
modal base, an ordering source, and a quantificational force. Since the modal base and
the ordering source are context-sensitive parameters, this theoretical assumption allows
me to account for the contextual sensitivity of mood selection observed in the
constructions when both the subjunctive and the indicative are possible. The analyses that
attribute mood selection to the meaning of the matrix verb cannot explain the pattern of
the double mood selection.

The interpretation of sentences with a matrix propositional attitude verb and a
mood operator in the embedded clause proceeds as follows. Depending on the semantics
of the main verb, the set of worlds with respect to which the embedded proposition $p$ is
interpreted, would be either homogenous (all worlds are $p$ worlds/all worlds are not-$p$
worlds), or non-homogenous (some worlds are $p$ worlds and some worlds are not-$p$
worlds). For example, verbs such as e.g. *iskam* ‘want’ specify that the set of worlds with
respect to which the proposition in their scope is evaluated is non-homogenous (cf. Heim
1992, von Fintel 1999). Thus, these verbs can only select the subjunctive, but not the
indicative. On the other hand, verbs such as *znam* ‘know’ require that the set of worlds
with respect to which the proposition denoted by the complement is evaluated be
homogenous. These verbs select the indicative but not the subjunctive. Verbs that allow
both types of complements select the indicative or the subjunctive depending on the
context. The context in which the speaker is committed to a particular epistemic position
specifies that the set of worlds with respect to which the proposition $p$ is interpreted is
homogenous and triggers the indicative mood. The context in which the speaker is
weakly committed to a particular epistemic position affects the content of the modal base,
allowing for both $p$ and not-$p$ worlds in the set of worlds with respect to which $p$ is evaluated. In such cases, the subjunctive is selected.

1.2.3 Expressions of epistemic modality: a wider perspective

When the findings of the two case studies are considered together, they contribute to a better understanding of grammatical means that express epistemic modality in natural language. This study suggests that the strength of epistemic commitment is grammatically encoded on a scale. The unmarked indicative forms express strong positive or strong negative commitment. The strength of the epistemic commitment expressed by the evidential is generally weaker than that expressed by the indicative, and it depends on the type of evidential context. In direct and inferential evidential contexts the evidential construction expresses the belief that $p$ is true, but it signals that the speaker lacks the factual knowledge, which is a stronger commitment. On the other hand, evidential sentences in reportative contexts are entirely non-committal as far as the attitude of the speaker is concerned. In embedded clauses, the strength of the epistemic commitment is manifested through the opposition between the indicative and the subjunctive mood. The subjunctive mood expresses a weaker epistemic commitment than that expressed by the indicative. I hope that this study provides a foundation for a subsequent study about the interaction and the division of labor between evidentiality and mood in Bulgarian.
1.3 Structure overview

The dissertation has two parts. In part 1, I discuss the meaning of the evidential construction in Bulgarian and compare it to the meaning of main clauses with the default indicative mood. The discussion in part 1 is organized into eight chapters. Chapter 2 provides background on formal tools that I use for the analysis of evidentiality and mood. I discuss (i) neo-Reichenbachian framework (Klein 1994), and show how it can be applied to the analysis of tense and aspect in Bulgarian, (ii) truth conditional semantics (cf. Dowty, Walls and Peters 1979), and (iii) Kratzer’s theory of modality (Kratzer 1979, 1991). Chapter 3 provides background on the Bulgarian verb in the indicative paradigm. In chapter 4, I discuss the evidential paradigm. Chapter 5 focuses on the meaning components of the evidential: (i) temporal relations, (ii) information source, and (iii) epistemic commitment. I show how the semantic contribution of tense and aspect in the scope of the evidential allows speakers to temporally locate eventuality. With respect to the information source component I show that the Bulgarian evidential expresses *concrete* evidence (as opposed to evidence based purely on mental experience). I also show that the evidential construction in Bulgarian has an epistemic modal component, as was observed by Izvorski (1997). Chapter 6 discusses the meaning components of the evidential operator and presents a compositional semantic analysis of the Bulgarian evidential construction. Chapter 7 discusses previous formal analyses of evidentiality in Bulgarian: Izvorski (1997) and Sauerland and Schenner (2007), and shows that the analysis I propose in chapter 6 fares better on empirical and theoretical grounds than the
previous analyses. Chapter 8 concludes part 1 with a discussion of the relation between
the evidential and indicative paradigms. While previous analyses analyze the indicative
as encoding a direct information source, and the evidential as encoding indirect
information sources, I argue that the two paradigms encode the strength of epistemic
commitment. The indicative marks information as known by the speaker to be true, while
the evidential expresses a weaker epistemic commitment.

Part 2 focuses on the phenomenon of mood distribution in Bulgarian. The
discussion is organized into five chapters. In chapter 9, I argue that Bulgarian has an
independent subjunctive paradigm and that the forms in the subjunctive have distinct
morphological, syntactic and semantic properties. This discussion is necessary because
many Bulgarian scholars reject the idea that Bulgarian has a subjunctive mood
(Genadieva-Mitafčieva 1970). In chapter 10, I discuss the three patterns of mood
distribution in Bulgarian and formulate the proposal that the distribution of mood is
crucially dependent on the epistemic commitment of the attitude holder. In chapter 11, I
show how this proposal can explain the pattern of mood selection in Bulgarian for
different semantic classes of predicates. In chapter 12, I propose a formal semantic
analysis of mood distribution. Chapter 13 discusses previous analyses of mood and
compares them to my proposal. I show that none of the existing analyses can be applied
to explain mood distribution in Bulgarian.

Chapter 14 concludes the dissertation and summarizes the findings of the two parts.
CHAPTER 2: FORMAL FOUNDATIONS

This chapter provides an overview of formal frameworks that I use in my analysis of evidentiality and mood in Bulgarian. In section 2.1, I introduce the temporal framework of Reichenbach (1947) and Klein (1994). In section 2.2, I discuss the framework of truth conditional semantics (Dowty, Wall and Peters 1981). Section 2.3 provides background on Kratzer’s theory of modality (Kratzer 1977, 1981).

2.1 Temporal relations in a neo-Reichenbachian framework

Within the neo-Reichenbachian framework (Reichenbach 1947, Klein 1994), the temporal and aspectual relations are defined in terms of subset (⊆) and precedence (<) relations between the three temporal parameters, Event Time (ET), Reference time (RT) and Speech Time (ST).¹ ET refers to the time of the eventuality under discussion as lexically specified by the verb, e.g. a singing eventuality for the verb peja ‘sing’, and a falling eventuality for the verb padam ‘fall’. ST is the moment at which the sentence is uttered. RT is usually defined as “the time for which an assertion is made” (Klein 1994:58), and corresponds to the most salient time interval under discussion in the current discourse.

¹ I use the temporal parameters introduced in Reichenbach (1947). Klein (1994) uses different terminology, i.e. Situation time, Topic time, and Utterance Time, respectively.
The hallmark of the Reichenbachian framework is the introduction of the Reference Time parameter. In pre-Reichenbachian analyses, temporal relations were represented as relations between the two temporal parameters, ST and ET. Even though the introduction of RT in Reichenbach (1947) was dictated by the need to analyze the Present Perfect and the Past Perfect tenses, in the subsequent literature RT has been used extensively in the analysis of other tenses, aspectual classes, and discourse effects (e.g. Kamp and Roher 1983, Kamp and Reyle 1993, Partee 1984, Dowty 1986, Hinrichs 1986, Smith 1986, Smith 1991). Reichenbachian ideas were further refined in Klein (1994), who defined the meaning of tenses and grammatical aspect in terms of the relations between ST, ET, and RT.

Within the Kleinian framework, the meaning of perfective and imperfective aspect is represented as a subset relation between ET and RT (Klein 1994). The imperfective aspect signals that ET is included in the reference time (1a), while the perfective aspect signals that RT is included in ET (1b).^3^  

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2 For Reichenbach (1947), the difference between simple past, present perfect, and past perfect was formulated in terms of the temporal location of ET, RT and ST with respect to each other, and is shown in (i)-(iii) below. In simple past tense sentences, ET coincides with the RT, and both are located prior to the ST (ib). A present perfect predicate encodes that the ET precedes both, the RT and the ST (iib), while a past perfect predicate specifies that the three times are sequentially ordered (iiib).

(i) a. John arrived. b. ET, RT < ST
(ii) a. John has arrived. b. ET<RT, ST
(iii) a. John had arrived. b. ET< RT< ST

3 An alternative analysis is to assume that the relation between RT and ET is encoded not in the meaning of grammatical aspect, as in Klein (1994), but expressed by the Aktionsarten of the clause (cf. Dowty 1979 on English). The assumption that the relation between RT and ET is encoded in the meaning of grammatical aspect is justified by the fact that there is a correlation between telicity and aspect in Bulgarian: telic meaning is usually expressed by perfective aspect while atelic meaning by imperfective aspect. Thus, the example in (i) shows that in English, the same form of the verb – flowed – can have either a telic or an atelic interpretation, depending on whether the subject is a mass or a count noun.

(i) From Cipria and Roberts (2002:304), ex. (9)  
a. Oil flowed through the pipes. (atelic)  
b. 300 liters of oil flowed through the pipes. (telic)

Unlike English, in Bulgarian, the type of interpretation – telic or atelic – does not depend on the form of the noun, but correlates with the grammatical aspect: imperfective forms produce atelic reading ((iia)
(1) The meaning of grammatical aspect:
   a. Imperfective aspect: \( RT \subseteq ET \)
   b. Perfective aspect: \( ET \subseteq RT \)

The meaning of simple tenses can be represented in terms of identity (=) or precedence relation (<) between RT and ST, as follows.

(2) The meaning of tenses:
   a. Present: \( RT = ST \)
   b. Past: \( RT < ST \)
   c. Future: \( ST < RT \)

The utility of the three-parameter system and the importance of the RT parameter become apparent once we consider the meaning of tenses in discourse, as in (3).

(3) From Klein (1994:22), ex. (1)
   a. - Do you know where John is?
   b. - He was in the garden.

We understand (3b) to mean (i) that John was in the garden at some time prior to ST and (ii) that the speaker of (3b) believes that at the time of the conversation, John might still be in the garden. A two-parameter theory of tense would predict that the state of John’s being in the garden terminated prior to ST (under the assumption that past tense encodes that ET precedes ST, i.e. ET < ST). Thus, a two-parameter analysis cannot account for the

\[ (iia) \text{ and } (iiia) \text{ and perfective verb forms produce telic reading } ((iib) \text{ and } (iib)). \]

(ii) a. Petrol tečešte prez tárbite. (atelic; imperfective)
   Oil flow.IMPERF.3SG.PAST through pipes
   ‘Oil was flowing through pipes.’
   b. Petrol iz-teče prez tárbite. (telic; perfective)
   Oil PERF-flow.3SG.PAST through pipes
   ‘Oil flowed through pipes.’

(iii) a. 300 litra petrol tečaha prez tárbite. (atelic; imperfective)
   300 liters petrol flow.IMPERF.3PL.PAST through pipes
   ‘300 liters of petrol were flowing through pipes.’
   b. 300 litra petrol iz-tekoha prez tárbite. (telic; perfective)
   300 liters petrol PERF-flow.3SPL.PAST through pipes
   ‘300 liters of petrol were flowing through pipes.’

The assumption that grammatical aspect in Bulgarian expresses the relation between RT and ET is also adopted in Łazorczyk (2010).
intuition that at the time of the conversation in (3), John is still in the garden. On the other hand, the overlap relation between the eventuality of John’s being in the garden and ST is easily derivable within the neo-Reichenbachian framework, as (4) shows.

(4) a. Past tense of be: RT < ST
   b. Stative/Imperfective: RT ⊆ ET
   c. From (a) and (b): ET < ST or ST ⊆ ET

Within such a framework, the past tense on the verb be is analyzed as encoding a precedence relation between RT and ST (4a), and, since be is stative, it is analyzed as encoding a subset relation between RT and ET (4b). From these two relations, it follows that the eventuality of John’s being in the garden can either terminate prior to ST (ET < ST) or can be ongoing at ST (ST ⊆ ET). This is a desirable result, since it accounts for the two possible readings of (3). In what follows, I show how the Kleinian system can be applied to explain temporal and aspectual relations in Bulgarian.

In the mini-discourse presented in (5), of primary interest is the temporal contribution of the past tense form peeše ‘sing’ in the second line of the dialogue.

(5) A: Kakvo zabeljaza, kogato vlezna v stajata?
   what notice.PERF.3SG.PAST when enter.PERF.3SG.PAST in room
   ‘What did you notice when you entered the room?’

   B: Ivan peeše.
   Ivan sing.IMPRF.3SG.PAST
   ‘Ivan was singing.’

The ET of Ivan’s singing is a time interval during which the singing eventuality holds; it might have started several hours prior to the speakers’ entering the room, and might be still ongoing at the time of the conversation in (5). RT is the time when the speaker enters the room and sees Ivan singing. ET and RT do overlap but they are distinct times.
The sentence *Ivan peeše* ‘Ivan was singing’ means that Ivan was singing at the time when the speaker entered the room, but leaves it open whether the eventuality of Ivan’s singing has terminated prior to ST or is still ongoing. Both scenarios are compatible with the meaning of the verb *peeše* ‘was singing’, as the continuations in (6) and (7) show.

(6) Context: What did you notice when you entered the room?
Ivan peeše. Vsāšnost toj vse ošte pee.
Ivan sing.IMPRF.3SG.PAST In.fact he still sing.IMPRF.3SG.PRES
‘Ivan was singing. In fact, he is still singing.’

(7) Context: What did you notice when you entered the room?
Ivan peeše. Sega toj pie vino.
Ivan sing.IMPRF.3SG.PAST Now he drink.IMPRF.3SG.PRES wine
‘Ivan was singing. Now he is drinking wine.’

The two-parameter temporal framework, where the past tense of the verb is analyzed as encoding precedence relation between ET and ST would predict that the event of Ivan’s singing has terminated prior to ST, thus only accounting for the temporal relations in (6). The neo-Reichenbachian theory, on the other hand, where the relation between ST and ET is mediated by RT, correctly predicts both readings. The past tense locates the RT before the ST (RT < ST), and the meaning of the imperfective predicate requires that the ET holds through the RT (e.g. RT ⊆ ET). As in (4), these relations allow for two possibilities: the event of Ivan’s singing can either be ongoing at the time of the conversation (6) or it can terminate prior to the time of the conversation (7), which is a desired result.

As the discussion above shows, the neo-Reichenbachian framework can be successfully applied to explain temporal and aspeactual relations in Bulgarian. The next
section provides background on truth-conditional semantics.

2.2 Truth-conditional semantics

According to Dowty, Wall and Peters (1981) “a truth-conditional theory of semantics is one which adheres to the following dictum: To know the meaning of a declarative sentence is to know what the world would have to be like for the sentence to be true” (Dowty et al. 1981:4). For a semanticist who works in the framework of truth-conditional semantics, “to give the meaning of a sentence is to specify its truth conditions, i.e. to give necessary and sufficient conditions for the truth of that sentence” (Dowty 1979:4). Thus, in order to understand the meaning of the sentence *There is a book on the table* we need to know what the world must be like for this sentence to be true. Intuitively, the sentence *There is a book on the table* is true if and only if the entity referred to as *the book* is located on top of another entity, referred to as *the table*.

The program of truth-conditional semantics is implemented by means available within the model-theoretical approach to meaning (Dowty et al. 1981:10). Model theory is concerned with the question of how to represent the relationship between a linguistic expression and its meaning, as well as with the question of how the meaning of complex expressions is derived from the meanings of its parts. Model theory “involves the construction of abstract mathematical models of those things in the world making up the semantic values of expressions in the object language” (Dowty et al. 1981:10), where *object language* refers to the language under investigation. In the context of the current work, Bulgarian is the object language. Linguistic expressions in the object language are translated into a meta-language (Dowty et al. 1981:6), and then expressions in the meta-
language are interpreted model-theoretically. In what follows, I discuss rules that govern the relation between the object language and the meta-language, as well as the model-theoretic interpretation of expressions in the meta-language.

There are several main components of the truth-conditional semantic analysis. First there is “a set of things which can be assigned as semantic values” to linguistic expressions (Dowty et al. 1981:42). Sets of individuals, sets of worlds, and sets of truth values are examples of such entities. The inventory of entities that can serve as semantic values of linguistic expressions is determined by the model one adopts. According to Dowty 1981 et al., “a model begins by specifying what sorts of things there are in the world, and then, with respect to this assumed ontology, specifies the interpretation of the object language” (Dowty 1981:25). The last part of this quote refers to the second major principle of truth-conditional semantics, namely, to the assumption that there are rules that specify what kinds of semantic values can be assigned to a particular linguistic expression. For example, sentences are assigned truth values (Dowty et al. 1981:42). Semantic values of sentences, truth and falsity, are represented by two objects, 1 and 0, respectively (cf. Dowty et al. 1981:25).

The third major component of truth conditional semantics is the principle of compositionality, according to which there are rules that specify how the meanings of complex linguistic expressions are derived from the meanings of its parts.

Within the truth-conditional semantics framework, each basic expression of the object language is assigned the appropriate semantic value (Dowty et al. 1981). Functions are responsible for the assignment of semantic values. The interpretation function $\llbracket \rrbracket$ is
responsible for the assignment of semantic values to basic expressions. \[\llbracket \alpha \rrbracket^M\] provides the semantic value for a linguistic expression with respect to the relevant parameters of interpretation. Within a model-theoretical approach to semantics, the notion of truth is relative to the model one adopts. Thus, a model is specified as one of the parameters for interpretation of a linguistic expression. Assume a toy model \(M\), which is a pair \(M = <A, F>\), where \(A\) is a non-empty set of entities, and \(F\) is an assignment function that assigns semantic values to constants of language \(L\). \(\llbracket \alpha \rrbracket^M\) represents the semantic interpretation of a linguistic expression \(\alpha\) relative to model \(M\). If \(\alpha\) is a constant, \(\llbracket \alpha \rrbracket^M = F(\alpha)\).

A model is not the only parameter of interpretation with respect to which the meaning of a linguistic expression can be defined. For example, in a language that besides constants has variables, and uses quantification over variables, a variable assignment function, e.g., \(g\), serves as yet another parameter for interpretation (Dowty et al. 1981). If \(\alpha\) is a variable, the interpretation of \(\alpha\) is relative to the variable assignment function \(g\), i.e. \(\llbracket \alpha \rrbracket^{M,g} = g(\alpha)\).

Besides a model and an assignment function, one parameter which is especially relevant for the interpretation of modal linguistic expressions are possible worlds (cf. Lewis 1986). According to Portner, “the notion of possible world allows us to represent directly the intuition that modality has to do with possible but not necessarily with actual situations” (Portner 2009:45). Possible worlds specify “how things are, or might be, down to the finest semantically relevant detail. A particular world – one of all the possible ones – is to contain everything that could affect the truth value of some sentence, i.e. everything that a sentence can be about” (Dowty 1981:12). The nature of the world that
serves as the parameter for interpretation crucially affects the truth value of a linguistic expression. For example, if the world of evaluation \( w \) is one in which it never rains in Chicago, then the sentence *It is raining in Chicago now* is false with respect to the world of evaluation. The same sentence is true if we chose to interpret it with respect to a different world, say \( w' \), and \( w' \) is such that it is currently raining in Chicago. Similarly, if John believes that it is raining in Chicago now, then the sentence *It is raining in Chicago now* is true in John’s belief worlds, i.e. in those worlds that are compatible with John’s beliefs. Note, however, that this sentence does not have to be true in the real world.

Using worlds as parameters of interpretation means that the modal \( M \) needs to be expanded to accommodate this new type of entities. The new model \( M \) is a triple, which, besides a non-empty set of entities \( A \), and an assignment function \( F \) also contains a non-empty set of worlds \( W \), i.e. \( M = \langle A, F, W \rangle \). The basic types in this model are entities \((e)\), worlds \( (s)\), and truth values \((t)\). I use variables \( x, y \) for entities, and \( w', w'', \) and \( w''' \) for worlds. The meaning of a linguistic constant in such a model is relative to the model of interpretation, to the variable assignment \( g \), and to the world of interpretation:

\[
\llbracket \alpha \rrbracket^{M,g,w} = F (\alpha, w).
\]

Consider now how the concept of possible worlds allows one to formulate the meaning of sentences with a modal component. Within classical modal logic, as well as within the framework of Montague semantics (e.g. Dowty et al. 1981), the meaning of modals is understood in terms of quantification over possible worlds. Necessity modals such as *must* involve universal quantification over possible worlds, while possibility modals such as *may* involve existential quantification. The meaning of a complex
expression containing a modal, i.e. a sentence of the form *It must be raining*, is determined from the meaning of the modal and the meaning of the sentence in its scope. In the model that uses worlds as parameters of interpretation, the meaning of sentences is no longer a truth value, but a function from worlds to truth value, i.e. a proposition. 

Propositions are semantic expressions of type \(<s, t>\). Given these assumptions, the meaning of *must* and *may* with respect to model \(M\), world \(w\), and assignment function \(g\) can be represented as in (8).

(8) Toy definitions (to be modified); Adapted from von Fintel and Heim (2007: 28), ex. (41) and (42)

\[
\text{a. } [\ [\text{must} ] ]^M,g,w = \lambda p <s,t> \forall w': p(w') = 1 \\
\text{b. } [\ [\text{may} ] ]^M,g,w = \lambda p <s,t> \exists w': p(w') = 1
\]

According to (8a), *must*, when interpreted with respect to model \(M\), world \(w\), and assignment function \(g\), is true iff when it takes a proposition \(p\) as an argument, the resulting linguistic expression is true in all worlds \(w'\). According to (8b), *may* when combined with the proposition \(p\) is true iff the resulting expression is true in some worlds \(w'\).

The meanings of modal verbs in (8), while good as a first attempt are not very useful in the long run (von Fintel and Heim 2007: 28). The problem with such definitions is that they do not specify what worlds are relevant for the interpretation of the sentence under discussion. For example, if our goal is to understand the meaning of the sentence *It must be raining*, the definition in (8a) would tell us that the sentence is true iff it rains in all relevant worlds. The question is, how do we know which worlds are relevant? The definitions in (8) do not answer this question, and thus are ill-suited to account for the

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4 More accurately, a proposition is a function from indicies, or world-time pairs to truth values (Dowty et al. 1981:147).
meaning of modal verbs in natural language.

What worlds are relevant largely depends on the context in which the sentence is uttered. Consider the examples in (9).

(9) From von Fintel and Heim (2007: 28), ex. (59) and (60)
a. A: Where is John?
   B: I don’t know. He may be at home.

b. A: Am I allowed to stay over at Janet’s house?
   B: No, but you may bring her here for dinner.

In (9a), the worlds relevant for the interpretation of the proposition \( p = \text{‘John is at home’} \), which occurs in the scope of \( \text{may} \), are worlds compatible with information or evidence that the speaker has and how she interpret it with respect to her knowledge states. (9a) is an example of an epistemic modal context. In Portner’s words, “epistemic modality has to do with knowledge” (Portner 2009:2). In (9b), the worlds relevant for the interpretation of the sentence in the scope of the modal are worlds compatible with the established norm, or rules of the family. (9b) is an example of a deontic modal context. It is important that the definition of a modal specifies what worlds are relevant for the interpretation of the proposition in its scope. Within the traditional modal logic framework, mechanisms that specify which worlds are relevant for the evaluation of a particular sentence in the scope of the modal in context \( c \), are accessibility relations. According to Portner, “the accessibility relation function applies to the context of use, yielding a set of accessible worlds” (Portner 2009:48). For example, when we formulate the meaning of volitional verbs, it is important to restrict the set of relevant worlds to those that are compatible with the desires of a particular epistemic agent. In traditional modal logic, a bouletic accessibility relation, defined in (10) below performs this function.
From Portner (2009:36), ex. (52)

\( R \) is a bouletic accessibility relation iff for some individual \( i, R = \) the relation which holds between two worlds \( w \) and \( w' \) iff all of \( i \)'s desires in \( w \) are satisfied in \( w' \).

While the accessibility relation function solves the problems with the definitions in (8), these tools are still too crude to adequately capture the meaning of modal expressions in natural language (see Portner 2009: 38-40 for discussion). What is needed is a more fine-grained theory that would account for the sensitivity of modal expressions to context. Such a theory was developed in a series of works by Angelika Kratzer (Kratzer 1979, 1981). In the next section, I spell out the details of Kratzer’s framework, focusing specifically on two major components of her analysis, the notions of modal base and ordering source, which will be central for the analysis of mood distribution that I develop later in this chapter.

2.3 Kratzer’s theory of modality (Kratzer 1977, 1981): the modal base and the ordering source

One of the main insights of Kratzer’s theory of modality (Kratzer 1977, 1987) is the idea that the meaning of modal expressions is relative to context (cf. Portner 2009:48). In the standard modal logic, modals are lexically ambiguous, and the accessibility relations help resolve the ambiguity by specifying what kinds of relations, i.e. epistemic accessibility relations, deontic accessibility relations or bouletic accessibility relations are relevant in a particular context. Kratzer presents a radical departure from this tradition by assuming that modals are not ambiguous, and making their semantics more sensitive to context (Portner 2009). A greater contextual sensitivity in Kratzer’s theory is achieved by the assumption that modal elements encode as part of their meanings a contextually sensitive
parameter – a modal base. Modal base is a conversational background. It specifies the
domain of quantification with respect to which the proposition in the scope of the modal
is evaluated. Linguistic expressions of the form *In view of what we know, given the
regulations, in view of what the law provides* (Kratzer 1991:640) are types of modal
bases. In the absence of these overt linguistic expressions, the relevant conversational
background is contextually specified, i.e. they are background assumptions made in
discourse and relevant for the interpretation of a particular sentence. Formally, the modal
base is a function \( f \) from a world to a set of propositions. In epistemic modal contexts,
function \( f \), applied to the world \( w \), returns a set of propositions that are known by the
relevant epistemic agent in \( w \) (Portner 2009:51). In deontic modal contexts, function \( f \)
applies to the world \( w \) and returns a set of propositions that are rules in \( w \). Consider now
how these assumptions allow us to derive the meaning of a sentence with a modal in an
epistemic context, such as (9a) repeated below in (11).

(11) From von Fintel and Heim (2007: 28), ex. (59) and (60)
A: Where is John?
B: I don’t know. He *may* be at home.

The definition of the modal base function \( f \) in an epistemic context is provided in (12),
where \( W \) is the set of worlds, and \( p \) is the proposition in the scope of the modal.

(12) From Portner (2009:51), ex. (73)
Used in context \( c \), *what I know* expresses that function \( f \) such that:
a. The domain of \( f \) is that subset of \( W \) in which the speaker of \( c \) exists;
b. For any \( w \) in the domain of \( f \), \( f(w) = \{ p : \text{the speaker of } c \text{ knows } p \text{ in } w \} \)

According to (12b), the modal base function \( f \) applies to the world of evaluation \( w \), and
returns a set of propositions \( p \) such that the speaker of e.g. (11B) knows \( p \).

We observed earlier that the meaning of modals is understood in terms of
quantification over possible worlds. Thus, in an epistemic context such as (11), a sentence containing a possibility modal *may* in (11B) is true iff the proposition \( p = 'he is at home' \) in the scope of the modal is true in *some* of the worlds compatible with what the speaker of (11B) knows. Note however, that the modal base function \( f(w) \) in (12) provides a set of propositions, and not a set of worlds. In order to understand the meaning of the sentence in (11) we need to derive a set of worlds from a set of propositions returned by the modal base function. Such a set is easily derivable. It holds that a proposition \( p \) is true in the world \( w \) iff \( w \in p \). Because propositions are sets of worlds, the set of propositions returned by the modal base function is a set of sets of worlds. By intersecting sets of worlds (or propositions) in the modal base, we can derive the set of worlds in which all the propositions returned by the modal base \( f(w) \) are true in \( w \) (Portner 2009:51). Assume that \( p_1 = \{w_1, w_2, w_3\} \), \( p_2 = \{w_1, w_3, w_4\} \) and \( p_3 = \{w_1, w_2, w_3, w_4\} \). Then \( \cap f(w) = \{w_1, w_3\} \).

Following the standard notation, I use \( \cap f(w) \) to represent a set of worlds derived from intersecting propositions in the modal base. In light of these assumptions, the meaning of modal verbs can be represented as in (13).

(13) Adapted from Portner (2009:52), ex. (74):\(^5\)

\[
\begin{align*}
\text{a. If } N \text{ is a necessity modal, then } & \left[ [N p] \right]_{w, c, f} = 1 \text{ iff for all } w' \in \cap f(w), \left[ p \right]_{w', c, f} = 1 \\
\text{b. If } P \text{ is a possibility modal, then } & \left[ [P p] \right]_{w, c, f} = 1 \text{ iff for some } w' \in \cap f(w), \left[ p \right]_{w', c, f} = 1
\end{align*}
\]

According to (13a), a linguistic expression with a necessity modal \( N \) and a proposition \( p \) in its scope is true with respect to a world \( w \), context \( c \), and a modal base function \( f \), iff in all worlds \( w' \) in \( \cap f(w) \), the proposition \( p \) is true in \( w' \).

---

\(^5\) I use different variables than Portner (2009).
Another concept of Kratzer’s theory that is relevant for the subsequent discussion is the notion of the ordering source. The ordering source is a conversational background. It is a function from a world to a set of propositions. It imposes an order on a set of worlds. Suppose the speaker discusses what she wants to accomplish this summer. She says: *I want to publish a journal paper and I want to go for a kayak trip in July.* In this context, the ordering source assigns to a world \( w \) the set of propositions that represent speaker’s desires in \( w \): \( g (w) = \{p_4, p_5\} \), where \( p_4 = \text{‘I want to publish a journal paper, and } p_5 = \text{‘I want to go for a kayak trip in July’}. The function of the ordering source is to impose an internal order on the set of worlds. In the case of *want*, the ordering source ranks worlds according to the speaker’s preferences (Heim 1992, von Fintel 1999). Thus, if the speaker wants to publish a journal paper, and go for a kayak trip in July, then the worlds in which she publishes a paper and goes for a kayak trip in July are better worlds compared to the worlds in which only one of these events happens. The ranking of worlds is modeled via the ordering relation ‘\(<_g(w)\)’ defined in (14).

(14) Adapter from von Fintel and Heim (2007:55), ex. (102)
For any set of worlds \( X \) and a set of propositions \( g (w) \), define the strict partial order \( <_{g(w)} \) as follows:
\[
\forall w', w'' \in X : w' <_{g(w)} w'' \text{ iff } \{ p \in g (w) : p (w'') = 1 \} \subset\{ p \in g (w) : p (w') = 1 \}
\]
For any pair of worlds \( w' \) and \( w'' \), we say that \( w' \) comes closer than \( w'' \) to the ideal set up by \( g (w) \) (in symbols: \( w' <_{g(w)} w'' \)), iff the set of propositions from \( g (w) \) that are true in \( w'' \) is a proper subset of the set of propositions from \( g (w) \) that are true in \( w' \).

The selection function \( \text{max}_{g(w)} \), defined in (15), applies to the set of worlds and selects worlds which are the best, as ranked by the ordering source.

---

6 I use different variables.
(15) Adapted from von Fintel and Heim (2007:55), ex. (103)
For a given strict partial order \( <_{g(w)} \) on worlds, define the selection function \( \max_{g(w)} \) that selects \( <_{g(w)} \) best worlds from any set \( X \) of worlds:
\[
\forall X \subseteq W: \max_{g(w)} (X): \{ w \in X: \neg \exists w' \in X: w' <_{g(w)} w \}.
\]

While Kratzer’s theory was originally developed for the analysis of modal verbs such as must and can, the core components of her analysis, the modal base and the ordering source, have been extended to explain a variety of other modal phenomena such as the meaning of the progressive (Portner 1998), the meaning of propositional attitude verbs (Heim 1992, von Fintel 1999), the meaning of evidentials (e.g. Izvorski 1997, Lee 2010), and the phenomenon of mood distribution (Georgi and Pianesi 1997, Villalta 2008, Matthewson 2010b). My analysis of evidentiality and mood in Bulgarian, which I develop in part 1 and part 2, respectively, makes crucial use of Kratzer’s theory of modality.
Part 1
Evidentiality in Bulgarian
CHAPTER 3: THE INDICATIVE PARADIGM: BACKGROUND ON THE BULGARIAN VERB

This chapter provides an overview of the indicative paradigms in Bulgarian and discusses basic properties of the Bulgarian verbal system. Verbs in the indicative mood, which is considered to be a semantic and morphological default (Bulgarian academy grammar 1994:351), are inflected for tense, person, and number. Additionally, verbs in all paradigms have clearly identifiable aspectual morphemes: perfective or imperfective. In the rest of this section, I discuss aspectual properties (section 3.1) and temporal properties (section 3.2) of verbal forms in the indicative paradigm. This discussion lays out the foundation for the comparison between verbal forms in the indicative paradigm and the properties of verbs in the evidential paradigm, presented in chapter 4.

3.1 Aspect system

All Bulgarian verbs are marked for aspect: perfective or imperfective (e.g. Aronson 1967, Scatton 1993:212). The imperfective forms, to the exclusion of secondary imperfectives, which I discuss below, are the basic, morphologically simplex forms, from which the perfective forms are derived via prefixation or suffixation, as the examples in (16) show:

---

7 Here the default status of the indicative paradigm vis-à-vis e.g. the evidential paradigm should be understood in terms of unmarkedness, measured in terms of morphological complexity, frequency of occurrence, and specificity. Within the structuralist tradition (e.g. Jakobson 1932, Trubetzkoï 1939) unmarked forms are morphologically less complex, express more general meaning, and are more frequent than the corresponding marked forms.

8 In examples with derived aspectual forms (perfective), I leave out the inherent aspect of the stem (imperfective).
Perfective suffixes and prefixes not only change the grammatical aspect of the simplex verb but often add idiosyncratic meanings, as the examples in (16b) and (16c) show. In (16b), the perfectivizing suffix -n- changes the meaning of the verb from ‘play’ to ‘honk’, and adds a semelfactive meaning (cf. Scatton 1993:212). In (16c), the perfectivizing prefix pod- changes the meaning of the verb from ‘write’ to ‘sign.’ The process whereby the basic meaning of the verb changes as a result of perfectivization is not unique to Bulgarian and is well attested in other Slavic languages (e.g. Klein 1995, Filip 1999, Borik 2006).

Bulgarian also has secondary imperfective suffixes -a- and -va- which, derive secondary imperfectives from perfective verb forms, derive secondary imperfectives. In (17), the application of the secondary imperfective suffix -v(a)-, yields an imperfective verb form.

(17) pod-pisa → pod-pis-v-a
PERF-sign.1SG.PAST   PERF-sign-2nd.IMPERF.1SG.PRES

The status of -va- and -a- is not uncontroversial. While in the traditional Bulgarian grammar these prefixes are treated as grammatical aspect morphemes (Scatton 1993:212), it has been recently proposed by Łazorczyk (2008) that secondary imperfective morphemes belong to the domain of lexical aspect. A full discussion about
the status of -va- and -a- would go too far afield, but the reader is referred to Łazorczyk (2008) for a formal semantic analysis of the secondary imperfective as an atelicizer and for a literature overview on the topic.

There are several aspectual tests that distinguish between perfective and imperfective aspect in Bulgarian. Thus, according to Scatton (1993:213), imperfective verb forms are clearly distinguished from perfective verb forms in that (i) only imperfective forms can form present active participles, gerunds, verbal nouns, and negative imperatives, and (ii) only imperfective verbs can appear in complements of aspectual verbs such as započvam ‘begin’, prodâlžavam ‘continue’, and svăršvam ‘end’ (Scatton 1993:213). The data in (18) show that active present participles can be derived from imperfective verb forms but not from perfective ones. The examples in (19) show that unlike imperfective verb forms, perfective verbs are infelicitous in complements of aspectual predicates.

(18) a. Present active participle from an imperfective stem:

\[
\begin{align*}
\text{pee} & \rightarrow \text{pe-ešt} \\
\text{sing.IMPERF.3SG.PRES} & \rightarrow \text{sing.IMPERF.ACTIVE.PRES.PLE}
\end{align*}
\]

b. Present active participle from a perfective stem:

\[
\begin{align*}
\text{iz-pee} & \rightarrow * \text{iz-pe-ešt} \\
\text{PERF-sing.3SG.PRES} & \rightarrow \text{PERF-sing.ACTIVE.PRES.PLE}
\end{align*}
\]

(19) a. Imperfective verbs in complements of aspectual verbs:

\[
\begin{align*}
\text{Stojan započna} & \rightarrow \text{Sojan start.PERF.3SG.PAST} \\
\text{prodâlži} & \rightarrow \text{continue.PERF.3SG.PAST} \\
\text{svărši} & \rightarrow \text{stop.PERF.3SG.PAST}
\end{align*}
\]

da pee.

\[
\begin{align*}
\text{SUBJ sing.IMPERF.3SG.PRES} & \rightarrow \text{Sojan started/ continued/ stopped singing.}
\end{align*}
\]
b. Perfective verbs in complements of aspectual verbs:
* Stojan započna / prodalži / svårši
  Stojan start.PERF.3SG.PAST / continue.PERF.3SG.PAST / stop.PERF.3SG.PAST

da iz-pee.
  SUBJ PERF-sing.IMPERF.3SG.PRES
  Intended: ‘Stojan started/ continued/ stopped singing.’

The pattern in (18) and (19) is not surprising in the context of Slavic verbal systems, as similar diagnostics distinguish between perfective and imperfective forms in other Slavic languages (cf. Borik 2006, Laleko 2010 on Russian). However, one factor that distinguishes Bulgarian from the majority of other Slavic languages is the compatibility of aspect with the present tense. While imperfective present tense forms are felicitous, and can be understood as complete sentences (cf. (20)), perfective present tense forms, irrespective of their lexical aspect, cannot appear independently in main clauses (21).

(20) a. svirja.
  play.IMPERF.1SG.PRES
  ‘I’m playing.’ / ‘I play.’

b. spja.
  sleep.IMPERF.1SG.PRES
  ‘I’m sleeping.’ / ‘I sleep.’

c. umiram.
  die.IMPERF.1SG.PRES
  ‘I’m dying.’ / ‘I die.’

d. stroja
  built.IMPERF.1SG.PRES
  ‘I’m building.’ / ‘I build.’

  PERF-play.1SG.PRES

b. * za-spja.
  PERF-sleep.1SG.PRES
Perfective present tense forms become felicitous only if preceded by a future marker ště ‘will’, conditional marker ako ‘if’, or the subjunctive marker da, as shown in (22).

(22) ště / ako / da     iz-svirja.
    FUT / if / SUBJ PERF-play.1SG.PRES
    ‘I will play.’ / ‘if I play’ / ‘to play.’

In not allowing the present tense perfective aspect combination (21), Bulgarian differs from e.g. Russian, where perfective present forms are felicitous, and have a futurate interpretation (23), and patterns together with Greek (24). This pattern is expected in light of the heavy structural convergences among Balkan languages triggered by an intense, centuries long contact between the speakers of structurally diverse languages in the Balkans (Joseph 1992).

(23) Russian:
    vy-igraju.
    PERF-play.1SG.PRES
    ‘I will win.’

(24) Greek, adapted from Giannakidou (2009:1885), ex. (2) and (3):^9
    a. na/as    to pis.
    SUBJ    it say.PERF.NPAST.2SG
    ‘You may say it.’

    b. * to pis
    it    say.PERF.NPAST.2SG

---
^9 As Brian Joseph pointed out to me (p.c.), in Greek there are many more markers that can occur felicitously with (bare) perfectives: an ‘if’, otan ‘when’, prin ‘before’ and pos indefinites such as opoudipote ‘wherever’, etc. The same observation holds for Bulgarian: perfective present tense forms can appear in predi ‘before’ clauses, kogato ‘when’ clauses, as well as with the subjunctive marker da (cf. chapter 9).
These examples conclude the discussion of aspectual diagnostics. I now turn to the discussion about the meaning of perfective and imperfective aspect in Bulgarian.

The meaning of the perfective and the imperfective aspect is often characterized in the theoretical literature in terms of oppositions based on such notions as (i) viewpoint (e.g. Comrie 1967), (ii) boundedness (e.g. Vinogradov 1947, Smith 1991), and (iii) discourse function (Labov and Waletzky 1967, Hopper & Thompson 1980, Smith 1991).

The analyses of aspect in terms of viewpoint (Comrie 1967) differentiate between the perfective and the imperfective based on whether the situation is presented in its entirety or from the outside (perfective) vs. from inside (imperfective). According to Comrie, the perfective provides “a view of the situation as a single whole without distinction of the various separate phases that make up the situation” (Comrie 1976: 16). The imperfective, on the other hand, “pays essential attention to the internal structure of the situation” (Comrie 1976:16). The analysis of aspect in terms of boundedness (e.g. Smith 1991) defines aspectual values based on whether the endpoints of the situation are included in the reference interval (perfective) or not included in the reference interval (imperfective). The analyses of aspect in terms of its discourse functions have shown that “perfective often functions in narrative discourse to move things forward” (Smith 1991:130) (cf. also Hinrichs 1981, Kamp and Roher 1983, Dowty 1986, Smith 1991). The imperfective, on the other hand, has a backgrounding function and generally does not move the narration.

The definition of the imperfective and perfective offered in traditional Bulgarian grammars reflects the discussion of the status of aspect in the theoretical literature as discussed above (cf. Bulgarian academy grammar 1994, Scatton 1993). The perfective aspect is often characterized as presenting a situation in its entirety, or as a completed event, thus including the start and end points of the eventuality under discussion. The imperfective is defined as presenting an eventuality as ongoing, not completed, and as seen from within.

The examples in (25) and (26) show the semantic difference between the perfective and the imperfective.

(25) Context: Your friend asks you what you were doing yesterday at the time when she called you. You say:

\[
pisa-h / \# na-pisa-h \quad pismo.
\]

\[
write.IMPRF.1SG.PAST \quad PERF-write.1SG.PAST \quad letter
\]

‘I was writing a letter.’

(26) Context: Your friend asks you what you managed to do yesterday, you say:

\[
na-pisa-h / \# pisa-h \quad pismo.
\]

\[
PERF-write.1SG.PAST \quad write.IMPRF.1SG.PAST \quad letter
\]

‘I wrote a letter.’

The context in (25) asks about the eventuality relevant for the time of the phone call. The imperfective verb *pisa* ‘write’ specifies that the eventuality of letter writing was ongoing at the time of the phone call (RT ⊆ ET), and is a felicitous choice in such a context. The perfective verb form, *napisah* ‘write’, on the other hand, presents the eventuality of letter writing as a completed event, contained within the relevant reference interval (ET ⊆ RT). The perfective form is infelicitous in the context given in (25) because the completion of the writing event is incompatible with the question asked in the context. The context in
(26) asks about accomplished results, and the pattern of aspectual distribution is reversed. The perfective form *napisah* ‘write’ presents the writing eventuality as a completed event, contained within the reference interval *yesterday*, and is a legitimate choice in this context. The imperfective form *pisah* ‘write’ presents the eventuality of letter writing as ongoing as of yesterday. It is an infelicitous choice in the context that asks about results.

The empirical generalizations about grammatical aspect presented in this section will help navigate the discussion of aspectual properties of evidential forms in chapter 4. In the rest of this section, I present basic facts about the temporal system in Bulgarian.

### 3.2 Tense system

The analysis of the temporal system in Bulgarian is a matter of some debate. The number of tenses recognized by individual scholars depends on (i) whether the perfect is classified as a tense or an aspect, and (ii) whether the future form is treated as a modal or a tense.\(^{11}\) According to traditional grammars (e.g. Andrejčin 1938), the indicative mood in Bulgarian has nine tense forms: present, simple past (aorist), imperfect, future, present perfect, past perfect, future perfect, future past perfect and future in the past. Aronson (1967:83) recognizes five tenses, excluding all future forms as modal (cf. Golałb 1964 on future in the past, Janakiev 1962). This decision is motivated by Aronson’s conceptualization of the indicative mood as ‘confirmative’ or veridical, which makes it incompatible with *irrealis* contexts, i.e. the contexts in which a situation is presented as

\(^{11}\) Such classification discrepancies are not surprising, and reflect indeterminancies in the theoretical literature. For example, the jury is still out on whether the future auxiliary *will* should be analyzed as tense in English. Jespersen (1924), Yavas (1982), Smith (1978), Enç (1996), Copley (2002), Condoravdi (2002) analyze *will* as a modal; Hornstein (1990) argues that *will* is ambiguous between a tense and a modal, and Kissine (2008) analyzes *will* as a pure tense.
not real, and thus non-veridical. An alternative analysis of the temporal system is provided in Scatton (1993: 210), according to whom there are three tense forms in Bulgarian: present, past, and future, “which combined with other categories occur in nine formations” (cf. also Comrie 1976:126 on the same view). In what follows, I discuss the morphology and temporal meaning of the basic temporal forms: the present, the simple past, and the future. The section concludes with the discussion of the present perfect forms, whose morphology and semantics are important for understanding the structure and meaning of the evidential construction, discussed in chapter 4 and chapter 5, respectively.

A present tense verb in Bulgarian consists of a stem, a suffix (absent in the 1<sup>st</sup> person singular and 3<sup>rd</sup> person plural)<sup>12</sup> and an inflectional morpheme that encodes person, number and tense information (Scatton 1993:210). Table 1 shows the inflections for the verb svirja ‘play’ in the present tense. First conjugation stem vowel -i- is glossed as ‘1C’.

<table>
<thead>
<tr>
<th>Person</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; person</td>
<td>svirj-Ø-a ‘I play’</td>
<td>svir-i-m(e) ‘we play’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-1SG.PRES</td>
<td>play.IMPERF-1C-1PL.PRES</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; person</td>
<td>svir-i-š ‘you play’</td>
<td>svir-i-te ‘you play’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-2SG.PRES</td>
<td>play.IMPERF-1C-2PL.PRES</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; person</td>
<td>svirj-i-Ø ‘s/he plays’</td>
<td>svirj-Ø-at ‘they play’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-3SG.PRES</td>
<td>play.IMPERF-1C-3PL.PRES</td>
</tr>
</tbody>
</table>

TABLE 1: Present tense forms (based on the discussion in Scatton 1993:210)

---

12 The suffix is usually a single vowel, whose value determines the conjugation class of the verb; -e- in the 1<sup>st</sup> conjugation (cf. čet-e-š ‘you read’), -i- in the second (hod-i-š ‘you go’), and -a- in the third (isk-a-š ‘you want’) (Scatton 1993:216).
(27) is an example of a construction with a present tense verb.

(27) Context: Your friend calls you on the phone in the middle of your piano practice and asks you what you are doing. Without stopping playing, you say:
Svirja na piano.
‘I am playing the piano.’

Within the neo-Reichenbachian framework, the overlap between the playing the piano eventuality and ST is derived from a joint contribution of present tense (RT=ST) and imperfective aspect (RT ⊆ ET), from which it follows that the ST is included in the ET interval (ST ⊆ ET).

A verb in the simple past tense (aorist) consists of a stem and an inflectional morpheme that encodes tense, person, and number information (Scatton 1993: 211). Table 2 shows the inflections for the verb *svirja* ‘play’ in the simple past tense.

<table>
<thead>
<tr>
<th>Person</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>svir-i-h ‘I played’</td>
<td>sviri-hm(e) ‘we played’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-1SG.PAST</td>
<td>play.IMPERF-1C-1PL.PAST</td>
</tr>
<tr>
<td>2nd person</td>
<td>svir-i-Ø ‘you played’</td>
<td>sviri-hte ‘you played’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-2SG.PAST</td>
<td>play.IMPERF-1C-2PL.PAST</td>
</tr>
<tr>
<td>3rd person</td>
<td>svir-i-Ø ‘he played’</td>
<td>sviri-ha ‘they played’</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF-1C-3SG.PAST</td>
<td>play.IMPERF-1C-3PL.PAST</td>
</tr>
</tbody>
</table>

**TABLE 2: Simple past (aorist) forms** (based on the discussion in Scatton 1993:211)

Simple past tense forms (aorist), such as *svirih* ‘played’ in (28), locate RT in the past with respect to ST (RT < ST). Since *svirih* ‘played’ is an imperfective form (RT ⊆ ET), the sentence specifies that the event time of playing the piano is ongoing at some salient
Besides the aorist, Bulgarian has another past tense form, the imperfect past tense, shown in (29).

(29) Context: your friend asks you what you did yesterday at 4:00 p.m. when she was trying to reach you by phone:
Svireh na piano.
play.IMPERF.1G.PAST on piano
‘I was playing the piano.’

Morphologically, the two past tense forms, the aorist and the imperfect, have different inflections in the 2\textsuperscript{nd} and 3\textsuperscript{rd} person singular, and are formed from stems with two different theme vowels: sviri- for the aorist and svire- for the imperfect. The two different stems are traditionally referred to as the present stem and the past stem; this distinction becomes important later, when I consider the meaning of the evidential construction. With respect to the meaning differences between the aorist and the imperfect, the two past tenses, the Aorist and the Imperfect, are argued to encode the aspevtual opposition between perfective and imperfective. The imperfect is analyzed as denoting eventuality as ongoing; the aorist is analyzed as presenting eventuality in its totality (cf. Demina 1959, Maslov 1963, Aronson 1967, Comrie 1976:72, but see Dahl 1985:82 for the critique of this analysis. An alternative approach would be to analyze the distinction between the Aorist and the Imperfect in terms of the Aktionsarten differences (cf. Cipria and Roberts 2000). One could assume that, like the Spanish Imperfecto, the Bulgarian
Imperfect is atelic, while the aorist is compatible with both telic and atelic Aktionsarten. If we assume that the Bulgarian Imperfect is atelic, we predict that it cannot combine with the perfective aspect (under the assumption that perfective aspect takes telic verbs as argument (cf. Łazorczyk 2008). However, this prediction is not borne out since there are perfective Imperfects, such as e.g. pročeteše [+durative; +perfective] (from Aronson 1967:86). While the question about the semantic difference between the imperfect and the aorist is indeed a very interesting one, it does not directly bear on the issues addressed in the dissertation, so I refrain from further discussion at this point.

The future tense form has two morphological components, a future marker šte ‘will’, invariant for all persons and numbers, followed by the present tense form of the verb (cf. Table 1).

Future forms are used to refer to future events. The form šte svirja ‘will play’ in (30) signals that the event of piano playing is ongoing at the contextually salient reference time located in the future with respect to ST.

(30) Context: Your friend asks you about your plans for tomorrow. You say:
Šte svirja na piano.
FUT play.IMPERF.1SG.PRES on piano
‘I will play the piano.’

Within the neo-Reichenbachian framework, the meaning of the sentence is derived from the joint contribution of the future tense (ST < RT) and imperfective aspect (RT⊆ ET).

In the rest of this section, I discuss the morphological and semantic properties of the present perfect. The present perfect deserves particular attention because of the similarities between present perfect forms and the evidential forms in Bulgarian (e.g. Izvorski 1997). In contemporary semantic literature it is usually maintained that the
evidential meaning in Bulgarian is expressed by the present perfect (cf. Izvorski 1997, Sauerland and Schenner 2007). Thus, a discussion of the properties of the present perfect will provide the necessary foundation for the comparison between the two types of constructions, the present perfect and the evidential, carried out in subsequent chapters.

3.2.1 Present perfect

The perfect constructions in Bulgarian have similar morphological makeup as in other Indo-European languages. They consist of a tensed copula, which bears person and number inflection, and a verbal participle, which has morphologically distinct forms for feminine, masculine, and neutral gender. Morphological realization of the copula depends on the person and number, i.e. sama for the 1st person singular, si for the second person singular, etc. Participial forms are marked for grammatical aspect, and have different stems depending on whether they are derived from a past or a present stem form. In what follows, I gloss the stem of the participle as pres and past for the present and past stem participles, respectively.

Table 3 shows the present perfect feminine paradigm for the verb svirja ‘play’ with the past stem (gender is grammatically marked in singular forms only).
As Table 3 shows, similarly to finite verbal forms, participles bear recognizable aspect morphemes. Besides aspectual specifications, participles in Bulgarian have different stems: past and present. Present stem participles are inflected with either -el or -al, while the past stem participles are inflected with -l (Scatton 1993:215; Scatton refers to these stems as the ‘imperfect’ and the ‘aorist’ stems, respectively). In the subsequent discussion, I use the subscript capitals to gloss the type of the stem, i.e. PRES for the present stem participles as in (31) and PAST for the past stem participles as in (32).

(31) svirja → svir-el (-a/-o)  
play.IMPERF.1SG.PRES  play.IMPERF.PRES.PLE.MASC(-FEM/-NEUT)  

(32) svirja → svir-i-l (-a/-o)  
play.IMPERF.1SG.PRES  play.IMPERF.PAST.PLE.MASC(-FEM/-NEUT)  

The participial svirila in Table 3 is a past stem participle. According to Scatton, only past stem participles can be used in the present perfect (Scatton 1993: 215). However, both past and present stem participles can be used to express evidential meaning, as discussed

---

13 If Scatton is right, then the present stem participles, which, according to him, cannot express the present perfect meaning, can be used as a morphological hallmark of the evidential system in Bulgarian.
in chapter 4. Scatton’s claim is challenged by the data presented in Pancheva (2003). Pancheva is primarily concerned with the meaning of the present perfect in Bulgarian, and she presents some examples where both past, i.e. *stroil* ‘build’ in (33a), and present stem participles, i.e. *strojal* ‘build’ in (33b), occur in the present perfect.

(33) Pancheva 2003:296, (33a, b)\(^{14}\)

a. Ivan e stroil pjasna kula
   Ivan be.3SG.PRES build.IMPERF.PAST.PLE sand castle
   ‘Ivan has been building a sandcastle.’

b. Ivan e strojal pjasna kula.
   Ivan be.3SG.PRES build.IMPERF.PRES.PLE sand castle
   ‘Ivan has been building a sandcastle.’

My language consultants judge present perfect constructions with the present stem participials as only marginally acceptable, thus, supporting Scattons’ generalization, but the data presented in Pancheva suggest that the availability of the present stem participles might be a matter of inter-speaker variation.

As Table 3 shows, as with finite verbal forms, participles bear recognizable aspect morphemes. Aspect morphemes of the participle make the expected aspectual contribution, as the examples in (34) and (35) show.

(34) Context: Your friend asks you what you were doing two hours ago. You say:
   Az sâm pisala / # na-pisala pismo.
   I be.3SG.PRES write.IMPERF.PAST.PLE.FEM / PERF-write.PAST.PLE.FEM letter
   ‘I have been writing a letter.’

(35) Context: Your friend asks you what you accomplished today. You say:
   Az sâm na-pisala / # pisala pismo.
   I be.3SG.PRES PERF-write.PAST.PLE.FEM write.IMPERF.PAST.PLE.FEM letter
   ‘I have written a letter.’

\(^{14}\) The glosses are different from the original. Pancheva (2003) analyzes different stems in terms of their aspectual differences, and glosses the past stem *stroil* ‘build’ as neutral aspect (the term neutral is due to Smith 1991), and the present stem *strojal* ‘build’ as the imperfective aspect. Her analysis is discussed in chapter 5.
The context in (34) inquires about an activity that was ongoing at the contextually salient reference time, and the imperfective is the only choice in such a context. The context in (35) asks about an activity completed within the specific reference time, and the perfective participle is the only felicitous choice in such a context. The distribution of perfective and imperfective participles exactly parallels the distribution of perfective and imperfective forms with finite inflection (cf. (25) and (26)).

Turning now to the temporal meaning of the present perfect, according to the traditional grammar, the temporal contribution of the present perfect is to express “an action completed in the past but relevant for or related to the present” (Scatton 1993: 211). Such a definition would account for the meaning of the present perfect in (36), where the form sâm svirila ‘I have played’ signals that the event of piano playing has started at some time in the past and has terminated before the contextually salient reference time, which is the present.

(36) Context: For the last couple of hours you have been playing the piano in a soundproof music room. Suddenly, someone knocks on your door. It turns out that there was a robbery in your house, and the police ask you what you did between 2:00 o’clock and now:

Az sâm svirila na piano.
I be.3SG.PRES play.PLE.FEM on piano
‘I have played the piano.’

There are also examples where the present perfect denotes events that are still ongoing at the time of the utterance, as in (37).
(37) Context: For the last couple of hours you have been playing the piano in a practice room. Your sister enters the room and asks you how the preparation for the upcoming piano competition goes. Without stopping to play, you tell her:

Az sâm svirila na piano dva časa veče, I be.3SG.PRES play.IMPERS,PAST.PLE.FEM on piano two hours already

i šte svirja ošte 20 minuti. and will play.1SG.PRES more 20 minutes

‘I have played the piano for two hours, and will play for 20 more minutes.’

Examples such as (37), in which the eventuality denoted by the present perfect form is ongoing at the time of the utterance, present a problem for the so-called “anteriority theories” (Rathert 2004) such as that of Reichenbach (1947). In the Reichenbachian framework, the meaning of the present perfect is represented in terms of two temporal relations (i) an overlap relation between RT and ST (this assumption captures the intuition that the event denoted by the present perfect form is relevant to the present moment); and (ii) the precedence relation between ET on the one hand, and RT and ST on the other, as in (38).

(38) ET < RT, ST

However, the assumption that ET and ST are sequentially ordered makes it impossible to account for cases when the two times overlap, as in (37). The solution to this problem is proposed within the so-called “extended now” theories, according to which the present perfect does not impose a sequential relation between ET and RT, but introduces a temporal interval, the “extended now”, which starts at some past time and continues throughout ST (McCoard 1978, Dowty 1979:342). Because the eventuality can be located anywhere within this RT interval, the “extended now” analysis allows one to account for
the temporal overlap between, e.g., the piano-playing eventuality and ST in (37). As Pancheva (2003) has shown (see also Iatridou, Anagnostopolou and Izvorski 2001), the “extended-now” framework successfully accounts for various types of the perfect meaning in Bulgarian, and should be preferred to the analysis of the perfect in Reichenbachian terms.

3.3 Summary and an outlook

In this chapter, I have discussed morphological properties of verbal forms in the indicative paradigm. I have focused specifically on aspectual and temporal morphology and their semantic contributions. This discussion serves as a backdrop for the discussion of evidential morphology and the temporal contribution of aspectual and temporal morphemes in the evidential paradigm, discussed in chapters 4 and 5, respectively.
CHAPTER 4: THE EVIDENTIAL PARADIGM

In this chapter I discuss evidential morphology in Bulgarian. I show that evidential meaning in Bulgarian is expressed by a designated verbal paradigm, distinct from the indicative. In Section 4.1, I discuss the differences between the present perfect construction and the evidential construction. This discussion is necessary in light of the fact that the two constructions appear to be identical in some contexts, which gives raise to the question of whether there are two independent constructions, or one construction that is ambiguous between the present perfect interpretation and the evidential interpretation. In section 4.2, I discuss morphological properties of the evidential paradigm. In section 4.3, I discuss the syntactic environment for the distribution of evidential forms. Section 4.4 summarizes the discussion in this chapter.

4.1 Differences between the present perfect and the evidential

It is often assumed in the contemporary semantic literature that evidential meaning in Bulgarian is expressed by the same morphological configuration that expresses the present perfect, i.e. a present tense copula and a participle (Izvorski 1997, Sauerland and Schenner 2007). Thus, the example in (39) out-of-the-blue is ambiguous between a present perfect meaning and an evidential meaning, as the two alternative glosses show.
(39) Izvorski (1997:222), ex. (1b)):
Az săm došăl.
I be.3SG.PRES come.PLE
‘I have come.’ (Present perfect)
‘I apparently came.’ (Evidential)

However, there are several types of evidence that show that despite the apparent similarities, evidential morphology in Bulgarian is distinct from the present perfect morphology. First, the ambiguity observed for the example in (39) disappears if the present perfect construction is presented in a context that does not support the present perfect meaning but targets the evidential meaning. (40) is an example of such a context.

(40) Context: You suffer from temporary amnesia, which affected your episodic memory. You know who you are but don’t remember some facts about yourself. Different people who come to visit you tell you different facts from your past. Yesterday you spoke with your aunt. Your aunt told you that when you were a child, you played the piano, but quit as a teenager. The next morning the doctor asks you what you learned about your childhood:
Az săm svirila na piano.
I be.3SG.PRES play.PLE.FEM on piano
‘I played the piano, [I heard].’/ ‘I used to play the piano, [I heard].’

The form săm svirila ‘I have played’ in (40), does not have a meaning of the present perfect, but encodes a reportative evidential meaning, i.e. it signals that the proposition expressed by the sentence, i.e. I played the piano, was achieved through report. I indicate the source of the speaker's information in square brackets, i.e. [I heard] in (40). In what follows, I use [I infer/I inferred] for inferential evidential meaning, and [I see] and [I feel] for direct evidential meaning. I return to the question of the range of information sources that the Bulgarian evidential construction can express in chapter 5. In the rest of this chapter, I focus on the question of evidential morphology.

15 The tense on the verb in square brackets, i.e. past (I heard) vs. present (I hear) depends on the temporal location of the evidence acquisition time (EAT) with respect to ST (cf. the discussion in chapter 6).
The second argument against the assumption that evidential meaning is expressed by the present perfect morphology is that there are morphological differences between the present perfect paradigm and the evidential paradigm. According to prescriptive grammar, the copula is dropped in the 3\textsuperscript{rd} person singular and plural in the evidential paradigm (Bulgarian academy grammar 1994). Thus, the evidential paradigm for the form sām svirila ‘play’, with a past stem participle, presented in Table 4, differs from the present perfect construction sām svirila ‘I have played’ in the indicative mood in the absence of the copula in the 3\textsuperscript{rd} person singular and plural (cf. Table 3, repeated below).

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>sām svirila</td>
<td>sme svirili</td>
</tr>
<tr>
<td>be.1SG.PRES play.IMPERF.PAST.PLE.SG.FEM</td>
<td>be.1PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
<tr>
<td>si svirila</td>
<td>ste svirili</td>
</tr>
<tr>
<td>be.2SG.PRES play.IMPERF.PAST.PLE.SG.FEM</td>
<td>be.2PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
<tr>
<td>Ø svirila</td>
<td>Ø svirili</td>
</tr>
<tr>
<td>be.3SG.PRES play. IMPERF.PAST.PLE.SG..FEM</td>
<td>be.3PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
</tbody>
</table>

**TABLE 4: Evidential paradigm: morphology (past tense)**

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>sām svirila</td>
<td>sme svirili</td>
</tr>
<tr>
<td>be.1SG.PRES play.IMPERF.PAST.PLE.SG.FEM</td>
<td>be.1PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
<tr>
<td>si svirila</td>
<td>ste svirili</td>
</tr>
<tr>
<td>be.2SG.PRES play.IMPERF.PAST.PLE.SG.FEM</td>
<td>be.2PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
<tr>
<td>e svirila</td>
<td>sa svirili</td>
</tr>
<tr>
<td>be.3SG.PRES play. IMPERF.PAST.PLE.SG..FEM</td>
<td>be.3PL.PRES play.IMPERF.PAST.PLE.PL</td>
</tr>
</tbody>
</table>

**TABLE 3: Present perfect**

53
The examples in (41) and (42) show the difference between the present perfect and the evidential with respect to the realization of the copula. The context in (41) targets a present perfect meaning, and only the form e svirila ‘has played’, with an overt copula, is felicitous in such a context.

(41) Context: You have a grand piano, and your niece Maria prepares for a prestigious piano recital in your apartment. She has been practicing all morning today. When her mom calls you on the phone and asks you what Maria has been doing this morning, you say:

Maria # (e)                 svirila                                na piano.
Maria     be.3SG.PRES play.IMPERF.PAST.PLE.FEM on piano
‘Maria has played the piano.’

In (42), on the other hand, the speaker makes a statement based on what she heard from her sister. The present perfect meaning is not supported in such a context, and the copula e ‘be’ must be absent to produce the intended evidential meaning.

(42) Context: Your sister told you over the phone that her daughter Maria played the piano at a school concert last week. When your mom asks you whether Maria participated in a school concert, you say:

Maria (e)                  svirila            na piano.
Maria     be.3SG.PRES play.PLE.FEM on piano
‘Maria played the piano, [I heard].’

The absence of the copula in evidential constructions has been recognized as a morphological hallmark which distinguishes evidential constructions from the present perfect constructions (Comrie 1976:109, Dahl 1985: 152, Izvorski 1997, Sauerland & Schenner 2007).16

16 Some authors point out that sometimes 3rd person singular and plural evidential sentences do occur with an overt copula (Friedman 1980 and references therein, Friedman 2004). The picture is complicated by the fact that the copula can be omitted in the present perfect (Friedman 1980 and references therein). (i), is an example of a reportative evidential construction; it was licensed as the speaker narrated a 17th century legend. Notably, the speaker inserts the 3rd person singular auxiliary in the evidential construction (contra to the grammar prescription), but drops the auxiliary in the second conjunct.
The third argument that shows that the present perfect and the evidential are distinct constructions concerns the fact that the present perfect and the evidential constructions in Bulgarian have different temporal properties, as shown in Izvorski (1997). First, while the present perfect construction is incompatible with deictic temporal adverbs such as *last year, at 1:00 p.m., on Tuesday* (43), evidential sentences readily accept them.

(43) Izvorski (1997:232), ex. (21a)

Toj e pišel pismo (# točno sega / # točno v tozi moment).

He be.3SG.PRES write.IMPERF PRES.PLE letter right now / right in this moment).

#‘He has written a letter right now/ at this very moment.’

(44) Izvorski (1997:232), ex. (21b)

Toj pišel pismo (točno sega)/ (točno v tozi moment).

He write.IMPERF PRES.PLE letter right now / right in this moment

‘He is apparently writing a letter right now/ at this very moment.’

Second, as pointed out by Izvorski (1997), present perfect constructions are incompatible with the individual level predicates. The English present perfect sentence in (45a) and its Bulgarian equivalent are infelicitous (45b):

(45) Adapted from Izvorski (1997:233), ex. (22)

a. # Two plus two has equaled four.

b. # Dve plus dve e bilo ravno na četiri.

Intended: ‘Two plus two has equaled four.’

The same information can be felicitously asserted with an evidential sentence, as (46)

(i) From Friedman (2004:108), ex. (8) (Glosses are different from the original).

Imalo e edin pop i gi oženil.

have.IMPERF.PLE be.3SG.PRES one priest and them married.PERF.PLE

‘There was a priest and he married him (to her), [I heard].’

My language consultants consistently drop the 3rd person auxiliary in evidential examples and consistently use copula in present perfect constructions, so for them the differences between the evidential and the present perfect paradigms are morphologically salient. However, it is reasonable to assume that there are dialectal variations in this respect.
shows:

(46) Adapted from Izvorski (1997:233), ex. (22)
Dve plus dve be.imperf.past.ple bilo imposto na četiri.
Two plus two be be.imperf.past.ple equal to four
‘Two plus two apparently equals/equated four.’

Finally, while the present perfect cannot be used if the information lacks current relev-
ancy (cf. # Einstein has visited Princeton), the evidential is felicitous in such contexts (Iz-
vorski 1997:231-233), as the data in (47) and (48) show, respectively.

(47) Adapted from Izvorski (1997:233), ex. (23) & (24)
  a. # Einstein has visited Princeton.
  b. Ajnštain be.past.ple posetil Prinstăn.
     Einstein be.past.ple visit Prinstăn.
     Intended: ‘Einstein has visited Princeton.’

(48) Adapted from Izvorski (1997:233), ex. (23) & (24)
     Ajnštain posetil Prinstăn.
     Einstein visit.past.ple Prinstăn.
     ‘Einstein apparently visited Princeton.’

The discussion in this section suggests that the present perfect and the evidential have
different morphological and semantic properties. Based on this, I conclude that the
present perfect and the evidential in Bulgarian are distinct constructions. In the next
section, I present the evidential paradigm and discuss its morphological properties in
more detail. The discussion of morphological properties is important for understanding
what morphological elements encode what meaning, the question that I address in chapter
5.

4.2 The evidential paradigm in Bulgarian

Bulgarian has a designated evidential paradigm consisting of morphologically distinct
forms (Chvany 1988, Comrie 1976, Aronson 1967, Scatton 1993, Bulgarian academy
grammar 1994). For each form in the indicative paradigm, there is a form in the
evidential paradigm (Bulgarian academy grammar 1994). Table 5 lists present, past,
future, and present perfect forms in the indicative and in the evidential paradigm for the
1st person singular form of the verb svirja ‘play’.

<table>
<thead>
<tr>
<th></th>
<th>The Indicative</th>
<th>The Evidential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>svirja ‘play’</td>
<td>sâm svirela</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF.1SG.PRES</td>
<td>be.1SG.PRES play.IMPERF.PRES.PLE.FEM</td>
</tr>
<tr>
<td>Past</td>
<td>svirih ‘played’</td>
<td>sâm svirila</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF.1SG.PAST</td>
<td>be.1SG.PRES play.IMPERF.PAST.PLE.FEM</td>
</tr>
<tr>
<td>Future</td>
<td>šte svirja ‘will play’</td>
<td>štjala sâm da svirja</td>
</tr>
<tr>
<td></td>
<td>FUT play.IMPERF.1SG.PRES</td>
<td>FUT.PLE be.1SG.PRES DA play. IMPERF.1SG.PRES</td>
</tr>
<tr>
<td>Present Perfect</td>
<td>sâm</td>
<td>bila sâm</td>
</tr>
<tr>
<td></td>
<td>be.1SG.PRES</td>
<td>be.PLE.FEM be.1SG.PRES</td>
</tr>
<tr>
<td></td>
<td>svirila</td>
<td>svirila</td>
</tr>
<tr>
<td></td>
<td>play.IMPERF.PAST.PLE.FEM</td>
<td>play.IMPERF.PRES.PLE.FEM</td>
</tr>
</tbody>
</table>

**TABLE 5: The indicative and the evidential paradigm**

The data presented in Table 5 show that only some forms of the evidential paradigm have
the morphology of the present perfect, specifically, the forms for the present (sâm svirela
‘I play’) and for the past (sâm svirila ‘I played’). Thus, it is inaccurate to assert that
evidential meaning is expressed by the present perfect morphology.

Table 5 shows that morphologically complex forms, such as the present perfect or
the past perfect, which are composed of an auxiliary and a verb in the indicative
paradigm, have a more complex morphological structure in the evidential paradigm than
the present perfect. Specifically, in the evidential paradigm the auxiliary is realized in the participial morphology, i.e. *bil*, and is followed by the present tense copula and a participle. The examples in (49) and (50) show the morphological difference between the present perfect form in the indicative paradigm and the present perfect form in the evidential paradigm.

(49) Indicative present perfect:

\[
\text{s'àm svirila} \\
\text{be.1SG.PRES play.IMPERF.PRES.PLE.FEM}
\]

(50) Evidential present perfect:

\[
\text{bila s'àm svirila} \\
\text{be.PLE be.1SG.PRES play.IMPERF.PAST.PLE.FEM}
\]

The future evidential form is derived by a slightly different mechanism. The future auxiliary *št* ‘will’ is realized in the participle, i.e. *štjala*. The rest of the construction consists of the subjunctive marker *da*, a present tense copula, and a present tense main verb, as in the examples (cf. the indicative future form in (43) and the evidential future form in (44)).

(51) Indicative future:

\[
\text{št \text{e} svirja} \\
\text{FUT play.IMPERF.1SG.PRES}
\]

(52) Evidential future:

\[
\text{štjala s'àm da svirja} \\
\text{FUT.PLE be.1SG.PRES SUBJ play.IMPERF.1SG.PRES}
\]

The subjunctive marker *da* appears obligatorily in constructions with the relative future interpretation\(^{17}\) and is fully expected given that tenses in evidential constructions are

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\(^{17}\) The example in (i) shows that *da* obligatory appears in the so-called ‘future in the past’ construction (the indicative paradigm), which has a relative future interpretation. In (i), the event of piano playing is future with respect to the plan-making event, but past from the perspective of the time of the utterance.
The data in Table 5 show that participial forms – an obligatory component of every evidential form – bear recognizable aspect morphemes and also encodes temporal information. Even though participles are usually analyzed as non-finite, and a temporal, I show in the subsequent chapters that participles in the evidential construction encode temporal and aspectual information, and thus can be considered finite verbal forms (cf. Joseph 1983 on the discussion of finiteness and on the analysis of participles in Balkan languages as finite). Thus, svirela is a present stem participle (cf. the form for evidential present), while the form svirila is a past stem participle (cf. the form for evidential past).

In chapter 5, I show that temporal and aspectual morphemes make compositional semantic contribution and eventually affect the meaning of the evidential construction. In the next section, I discuss the distribution of the evidential construction in different syntactic environments.

4.3 The distribution of the evidential construction

Besides main clauses (cf. (40) and (42)), the evidential construction can be used in a variety of embedded syntactic environments, such as relative clauses, temporal adjunct clauses, and complements of reportative and propositional attitude verbs.

---

(i) Context: On Monday, you made a weekly plan according to which you are supposed to play the piano on Wednesday. On Thursday, your friend asks you what you did on Wednesday. You say:

\[
\text{štjah da svirja na piano.} \\
\text{FUT.PAST SUBJ play:IMPERF.1G.PRES on piano}
\]

‘I would play the piano.’ /‘I was supposed to play the piano.’

18 The structure of štjala sâm da svirja ‘I will play’ in (52) presents a particular interest for a syntactic analysis. Rivero (2005) argues that these constructions are bi-clausal “with main clause auxiliary and subordinate auxiliary/verb both morphologically inflected for finiteness” (Rivero 2005:1085). Under her analysis, da is the head of the Modal Phrase in (52), i.e. štjala sâm sep [da svirja] (cf. Rivero 2005:1084, ex. (5)).
The construction in (53) is an example of the evidential in temporal adjunct clauses. In (53), both the main clause and the temporal adjunct clause *dokato* ‘while’ have evidential forms.

(53) Context: Your children Maria and Ivan are spending weekend with their aunt Anna. You just spoke on the phone with Anna, who told you what they did last night: Maria played the piano, while Ivan cooked dinner. When later your husband asks you what the children did last night, you say:

Maria svirila na piano,
Maria play.IMPERF.PAST.PLE.FEM on piano,

*dokato* Ivan gotvil večerja.
while Ivan make.IMPERF.PAST.PLE dinner

‘Maria played the piano, while Ivan was cooking dinner, [I heard].’

The evidential forms *svirila* ‘played’ and *gotvil* ‘cooked’ are licensed in the context in (54), because the speaker has reportative evidence for the events denoted by (54), i.e. the event of Maria’s playing the piano and the event of Ivan’s cooking.

According to Sauerland and Schenner (2007:538), the evidential construction in Bulgarian also occurs in complements of some propositional attitude verbs, such as *znam* ‘know’, *kazvam* ‘say’, and *govorja* ‘speak’ but not in complements of *mislja* ‘think’, *vjarm* ‘believe’ and *viždam* ‘see’ (Sauerland and Schenner 2007:538). The analysis of the internet data shows that in fact the evidential can occur in complements of a wider spectrum of verbs than identified by Sauerland and Schenner (2007). Thus, factive verbs such as *otkrivam* ‘discover’, *znam* ‘know’ and *zabeljazvam* ‘notice’, epistemic verbs such as *vjarm* ‘believe’, perception verbs such as *čuvam* ‘hear’, and reportative verbs such as *kazvat* ‘say’ allow for the evidential construction in the embedded clause. Examples of such constructions are given below. (The evidential forms are italicized.)
(54) Context: From a forum, where mothers of teenage girls discuss piercing
    Ot razgovorite si sâs neja znam,
    from conversations with her I know.
    če imalo devojki
    that have girls
    po na 15-16 godini, koito văršat tezi nešta.
    of 15-16 years who do these things
    ‘From my conversations with her, I know that there are 15-16 year old girls
    who do these things.’

(55) Po sâm sklonen da vjarvam,
    More be inclined to believe.
    če imalo njakakâv dogovor otnosno tova that have some agreement regarding that
    če Bâlgarija kato sjuzeren i Vlahija si deljat 50/50 primerno that Bulgaria as suzerain and Wallachia divide 50/50 approximately
    mitničeskite sborove.
    custom collections
    ‘I am inclined to believe that there was an agreement according to which
    Bulgaria, as a suzerain and Wallachia, split the custom collection equally.’

(56) Posledno čuh,
    Lately heard.
    če imalo izkazvane na politik,
    that have statement of politician
    če šтели da pravjat starija grada reservat.
    that they will make the old city reservat
    ‘Lately, I heard that there was a statement by a politician that they will make
    the old town a reservat.’

(57) Kazaha mi, če imalo njakakâv virus.
    They told me that have some virus
    ‘They told me that there was some virus.’

In the examples presented above, the evidential form appears to be syntactically

19 From http://forum.rozali.com/viewtopic.php?p=621655&s=5f18b03b8529b95ee5dcc41e07b5d87d, last accessed on May 20, 2011.
embedded in the indicative complement, introduced by the indicative complementizer če. An interesting question is whether these are cases of true syntactic embedding. An alternative explanation is to assume that in such constructions main verbs function as parentheticals and do not have the expected semantic contribution (cf. Simons 2007 on the evidential usage of propositional attitude verbs in English). In (54), for example, znam ‘know’ does not have factive meaning: the speaker’s commitment to the truth of the proposition \( p \), which is ‘there are 15-16 year old girls who do piercing’, is weaker than knowledge. Znam ‘know’ in this example provides additional information about the speaker’s source. If the observation about the parenthetical behavior of embedding verbs is correct, then the evidential construction in examples in (54) – (57) is not syntactically embedded. Such an analysis could explain why the embedded evidential in Bulgarian is speaker-oriented, i.e. why it is the speaker’s information source and not that of the subject that is relevant (cf. Sauerland and Schenner 2007).

There is a set of semantic contexts in which evidentials are impossible – these are complements of verbs that select the subjunctive mood, such as iskam ‘want’, and karam ‘urge’. The example in (58) shows that the evidential form svirila ‘play’ is incompatible with the subjunctive marker da.

(58) Context: Your friend tells you that Maria will play the piano at a school concert tonight. You want Maria to play the piano, and when someone asks you what you think about the upcoming concert, you say:
a. Iskam Maria [da sviri na piano].
   want.IMPERF.1SG.PRES Maria SUBJ play.IMPERF.3SG.PRES on piano
   ‘I want Maria to play the piano.’

b. * Iskam Maria [da svirila na piano].
   want.IMPERF.1SG.PRES Maria SUBJ play.IMPERF.PAST.PLE on piano
   Intended: ‘I want Maria to play the piano.’
Overall, the evidential morphology is not compatible with the subjunctive morphology. The incompatibility of the evidential with the subjunctive morphology might be due to the fact that the evidential and the subjunctive make incompatible semantic contribution as far as the strength of epistemic commitment is concerned. The explanation of this phenomenon is a topic for future research. My discussion in the subsequent chapters focuses exclusively on evidential constructions in main clauses, such as (42), repeated below in (59).

(59) Context: Your sister told you over the phone that her daughter Maria played the piano at the school concert last week. When your mom asks you whether Maria participated in a school concert, you say:
Maria svirila na piano.
‘Maria played the piano, [I heard].’


4.4 Summary and an outlook

In this section, I discussed morphological properties of the evidential paradigm in Bulgarian and its distribution. The discussion showed that despite the fact that the present perfect is morphologically identical to some evidential forms, specifically, to the past tense evidential, it is incorrect to assume that present perfect morphology expresses evidential meaning in Bulgarian. As the discussion has shown, forms in the evidential paradigm are morphologically distinct from present perfect forms in the indicative paradigm. In the next chapter, I discuss the core semantic components of the evidential
construction in Bulgarian.
CHAPTER 5: THE MEANING COMPONENTS OF THE EVIDENTIAL CONSTRUCTION

In this chapter, I show that evidential sentences in Bulgarian have three meaning components. Specifically, evidential sentences express (i) temporal relations, (ii) information source, and (iii) the strength of epistemic commitment on the part of the speaker. Tense and aspect morphemes contribute temporal and aspectual information. Other semantic components of the evidential construction, such as epistemic commitment, information source restrictions, and the temporal location between ST and the time at which the speaker acquires the relevant evidence for the proposition in the scope of the evidential are encoded in the evidential operator. Section 5.1 discusses temporal contribution of tense and aspect morphology in the evidential construction. Section 5.2 shows what kind of information sources the evidential construction in Bulgarian can express. Section 5.3 shows that the distribution of evidential sentences is sensitive to what the speaker believes, which suggests that evidential sentences also encode information about the speaker’s epistemic commitment (cf. Izvorski 1997). Section 5.4 discusses the discourse status of information expressed by the evidential construction. Specifically, I show that the proposition in the scope of the evidential operator constitutes at-issue content, while the evidential implication is not-at-issue (cf. Lee 2011 on Korean).
5.1 Temporality

The data analysis shows that the distribution of evidential forms in Bulgarian is sensitive to the temporal relations specified in the context (cf. (60) and (61)).

(60) Reportative evidential context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, is now writing a book. A couple of days later, at the class reunion, when someone asks you what Maria is doing now, you say:

Maria пиšela / # pisala kniga.
Maria write.IMPERF.PRES.PLE/ write.IMPERF.PAST.PLE book
‘Maria is writing a book, [I heard].’

(61) Reportative evidential context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, spent last year writing a book, and that the book has just been published. At the class reunion, when someone asks you what Maria did last year, you say:

Maria pisala / # пиšela kniga.
Maria write.IMPERF.PAST.PLE/ write.IMPERF.PRES.PLE book
‘Maria was writing a book, [I heard].’

The present stem evidential form пиšela is felicitous in the context in (60), but not in the context in (61). The past stem form pisala has the reversed distributional pattern.

Previous analyses of evidentiality in Bulgarian, e.g. Izvorski 1997, Sauerland and Schenner 2007, which I discuss in detail in chapter 7, lack the temporal component and would not predict the contrast in (60) and (61).

In what follows, I show that the evidential construction in Bulgarian has rich temporal and aspectual meaning. Specifically, I argue that that the Bulgarian evidential encodes relation between four temporal parameters, ST, ET, RT, and Evidence Acquisition Time (EAT), the latter from Lee (2010). The temporal relations between these times are encoded by tense and aspect of the participle, as well as by the temporal contribution of the evidential construction, as shown in Table 6.
In what follows, I discuss temporal and aspectual relations in evidential sentences. The main finding is that the temporal contribution of evidential forms is best understood in terms of relative tense relations.

5.1.1 The Evidence Acquisition Time and the concept of relative tense
In order to discuss temporal relations in evidential sentences, I enrich the standard neo-Reichenbachian framework with yet another temporal parameter, the Evidence Acquisition Time, originally introduced in Lee (2010). Evidence Acquisition Time (EAT) is the time at which the speaker acquires the relevant evidence for the proposition she reports. Depending on the type of the evidential meaning, i.e. reportative, inferential, or direct, EAT is associated with different events. In reportative contexts, EAT is the time at which the speaker acquires hearsay evidence for the proposition \( p \) in the scope of the evidential, where \( p = \text{‘Maria plays the piano’} \) in (62) – (64). In (62), EAT is the time of the speaker’s conversation with her sister.
Reportative evidential context: Your sister told you over the phone that at a concert last week her daughter Maria played the piano. When later your mom asks you about the concert, you say:

Maria svirila na piano.

Maria play.IMPERF.PAST.PLE on piano

‘Maria played the piano, [I heard].’

In inferential contexts, EAT is the time at which the speaker makes an inference that \( p \), based on the available evidence. In (63), it is the moment in which the speaker observes the visual clues, i.e. musical scores scattered around the room, the lid of the piano open, and makes an inference that Maria played the piano.23

(63) Inferential evidential context: Your niece Maria stays with you over the summer. When you come home from work, you see that the lid of the piano is open, and there are musical scores everywhere. It must be the case that in your absence Maria played the piano. When your husband calls, and asks you what Maria did during the day, you say:

Maria svirila na piano.

Maria play.IMPERF.PAST.PLE on piano

‘Maria played the piano, [I inferred].’

Finally, in direct evidential contexts, EAT is the time at which the speaker makes any type of perceptual observation, i.e. visual, auditory, or olfactory, of the eventuality she reports. In (64), EAT is the time at which the speaker sees Maria playing the piano.

(64) Direct evidential context: Your niece Maria stays with you over the summer. She usually spends most of the time reading in her room. While passing by Maria’s room today, you see her playing the piano. You say:

Maria svirela na piano!

Maria play.IMPERF.PRES.PLE on piano

‘Maria is playing the piano [I see]!’

In theoretical terms, EAT can be thought of as a time of evaluation, i.e. the time with respect to which eventualities are temporally located, similar to the time of evaluation

23 Unlike other languages, the Bulgarian evidential is felicitous in inferential contexts only if the inference is made based on some observable evidence. As Izvorski (1997) points out, the evidential cannot be used to report inferences based on knowledge or reasoning. See section 5.2 for discussion.
provided by propositional attitude verbs such as *think*, *believe*, and the reportative *say* (cf. Ogihara 1996, Abusch 1997, Gennari 2003). In (65), the eventuality of Maria’s playing the piano can precede or follow ST.

(65) Ivan said that Maria would play the piano.

Such a temporal flexibility can only be explained if the event of piano playing is future not with respect to ST, but with respect to the time of saying, which itself is located in the past (e.g., Ogihara 1996; Abusch 1997). Tenses interpreted with respect to a time different than the ST are often referred to as *relative tenses* (cf. Comrie 1976, Ogihara 1996; Abusch 1997, Sharvit 2003, Gennari 2003, Kubota et al. 2009).

Similarly to complements of propositional attitude verbs, in Bulgarian evidential sentences, eventualities expressed by the evidential sentence are temporally located not with respect to ST, but with respect to the time at which the speaker acquires the relevant evidence, i.e. EAT. For example, in (66), the future evidential construction refers to the event that occurred before ST, but is in the future with respect to the evidence acquisition time.

(66) Reportative context: Your classmate Maria cannot decide whether she should play the piano or do a modern dance performance for the upcoming school concert on Wednesday. On Monday Ivan told you that Maria will play the piano. You did not have chance to attend the concert, but when on Thursday someone asks you what Maria had decided on, you say:
Maria štjala da sviri na piano.
‘Maria would play the piano, [I heard].’

Examples such as (66) provide empirical support for the assumption that in evidential sentences EAT, and not ST, serves as the evaluation time for the proposition in the scope of the evidential.
With these assumptions in hand, I now turn to the discussion of aspectual and temporal relations in evidential sentences.

As it turns out, nothing new needs to be said about aspectual relations. In section 5.1.2, I show that the relation between ET and RT is specified by the grammatical aspect, as expected within the neo-Reichenbachian framework (e.g. Klein 1994). In section 5.1.3, I show that the relation between RT and EAT is specified by the temporal information encoded in participial stems. The joint contribution of grammatical aspect and participial tense allow one to temporally locate ET with respect to EAT. However, these relations are not sufficient to understand how ET is located with respect to ST. The missing link is the relation between EAT and ST. This temporal relation is part of the meaning of the evidential operator and is discussed in chapter 6.

5.1.2 Aspectual contribution of the participle

Similarly to finite verbal forms in Bulgarian, the participial forms in the evidential paradigm have clearly identifiable aspectual morphology, perfective or imperfective. In (67), for example, the perfective participle *napisol* is derived from the imperfective participle *pisal* by the application of the perfectivizing prefix *na-* to the imperfective.

\[
(67) \quad \text{pisal} \rightarrow \text{na-pisal}
\]

The distribution of aspectual forms in (68) and (69) is fully expected in light of the preceding discussion of aspect in Bulgarian. The imperfective past stem evidential form *pisala* ‘wrote’ in (68) presents situation as ongoing at the relevant reference interval, i.e. last year, and the perfective form *napisala* in (69) presents the book writing situation as
completed, or contained within the reference interval. The behavior of perfective and imperfective past stem participles in (68) and (69) parallels exactly the behavior of finite verbal forms in (25) and (26).

(68) Context: Your former classmate Ivan told you that Maria spent last year writing a book, and that the book has just been published. At the class reunion, everyone shares how they spent last year. What someone asks you what Maria was doing last year, you say:

Maria pisala                          /# na-pisala                 kniga.
Maria write.IMPERF.PAST.PLE      PERF-write,PAST.PLE book
‘Maria had been writing a book, [I heard].’

(69) Context: Your former classmate Ivan told you that Maria spent last year writing a book, and that the book has just been published. At the class reunion, everyone shares what they accomplished last year. What someone asks you what Maria accomplished, you say:

Maria na-pisala                   /# pisala                         kniga.
Maria PERF-write,PAST.PPLE / write.IMPERF.PAST.PLE book
‘Maria wrote a book, [I heard].’

Another parallel between aspectual forms in the evidential and in the indicative paradigm emerges in the domain of inflectional morphology. As the discussion in chapter 3 shows, perfective verbs are not compatible with present tense morphemes. For example, the present tense perfective verb form *napiše* in (70a) is ill-formed, while the combination of the imperfective aspect with the present tense is grammatical (70b).

(70) a. * Maria na-piše                          kniga.
     Maria PERF-write,3SG.PRES book
     Intended: ‘Maria is writing a book.’

b. Maria piše                               kniga.
     Maria write.IMPERF,3SG.PRES book
     ‘Maria is writing a book.’

The same restriction on the combination of tense and aspect applies to evidential forms. While participial forms do not have tense morphemes, they have past and present stems.
The data in (71) show that present stem participles are incompatible with the perfective morphology, while imperfective participles derived from the present stems are well formed (72).

(71) Context: Ivan, your former classmate, told you that Maria is writing a book. When someone asks you what Maria is doing, you say:

# Maria na-pišela kniga.
Maria PERF-write.PRES.PLE book
Intended: ‘Maria is writing a book, [I heard].’

(72) Context: Ivan, your former classmate, told you that Maria is writing a book. When someone asks you what Maria is doing, you say:

Maria pišela kniga.
Maria write.IMPERF.PRES.PLE book
‘Maria is writing a book, [I heard].’

The incompatibility of perfective aspect with present stem participles necessarily limits morphological possibilities in evidential constructions to three forms, namely (i) imperfective participles derived from the present stem such as pišela, (ii) imperfective participles derived from the past stem such as pisala, and (iii) perfective participles derived from the past stem such as napisala.

In light of this discussion, I assume that the grammatical aspect makes the expected semantic contribution to the meaning of the participle: the imperfective aspect signals that RT is a subset of ET (RT ⊆ ET), and the perfective aspect signals that ET is subset of RT (ET ⊆ RT). In the next section, I discuss the temporal contribution of the evidential construction.

5.1.3 Temporal contribution of the participle

In this section I show that temporal relation between RT and EAT is encoded by the participial tense. I start the discussion about temporal properties of evidential sentences
Similarly to the future tense in the indicative paradigm, the grammatical element responsible for the futurate meaning in evidential sentences is the future marker šte. The future auxiliary šte is realized in the participial form in the evidential paradigm, i.e. štjal(-a/-o) (cf. the discussion in chapter 4, section 4.2), while the verb, i.e. piše ‘writes’ in (73), bears present tense inflection. The sentence in (73) means that the book writing is in the future with respect to the time at which the speaker heard the news.

(73) Reportative evidential context: Your classmate Ivan told you that Maria, another classmate of yours, plans to write a book after graduation. When one of your friends asks you what Maria intends to do after graduation, you say:
Maria štjala da piše kniga.
‘Maria will write a book, [I heard].’

The temporal relations in (73) are derived by the assumption that the imperfective grammatical aspect on the verb piše ‘write’ specifies that RT is a subset of ET (RT ⊆ ET) and that the future tense morpheme temporally locates RT in the future with respect to EAT. Thus, the event of book writing is ongoing at the contextually salient RT, which is located in the future with respect to EAT.

Unlike sentences with the future temporal relation, evidential forms for the present and for the past present a more challenging case for a morpho-semantic analysis, as there are no clearly identifiable temporal morphemes. For one thing, the evidential forms for the present and for the past lack inflectional tense morphemes of the indicative paradigm. Moreover, unlike the perfect construction in the indicative paradigm, where the copula can bear present or past morphology (cf. sâm svirila ‘I have played’ vs. bjah svirila ‘I had played’), in the evidential paradigm the tense of the copula is invariably
present. Despite the apparent lack of temporal inflections, evidential forms do encode
temporal information. Such information is encoded in participial stems, and the stems
make a semantic contribution to the interpretation of evidential sentences. This becomes
apparent when the distribution of participial forms in the contexts with present and past
temporal relations is considered, such as (60) and (61), repeated below as (74) and (75).
The context in (74) specifies that the event of Maria’s writing a book is ongoing at EAT.
In such a context, the present stem participle pišela ‘written’ must be used; the past stem
participle pisala ‘written’ is infelicitous.

(74) Reportative evidential context: Last week you accidentally ran into your former
classmate Ivan, who told you that Maria, an old friend of yours, is now writing a
book. A couple of days later, at the class reunion, when someone asks you what
Maria does, you say:
Maria pišela / # pisala kniga.
Maria write.IMPERF.PRES.PLE/ # write.IMPERF.PAST.PLE book
‘Maria is writing a book, [I heard].’

If the scenario changes so that the event of writing a book is located in the past with
respect to EAT, the form pišela ‘write’ is no longer felicitous, and the past stem participle
pisala ‘write’ must be used instead, as (75) shows.

(75) Reportative evidential context: Last week you accidentally ran into a former
classmate Ivan, who told you that Maria, an old friend of yours, spent last year
writing a book, and that the book has just been published. At the class reunion,
when someone asks you what Maria did last year, you say:
Maria pisala / # pišela kniga.
Maria write.IMPERF.PAST.PLE / # write.IMPERF.PRES.PLE book
‘Maria was writing a book, [I heard].’

Examples with the participial živjala ‘live’ in (76) and (77) confirm this empirical
observation. In (76), the event of Maria’s living in Paris overlaps with EAT, and the
present stem participle živeela ‘live’ is the only option in this context. In (77), on the
other hand, Maria’s living in Paris is in the past with respect to the speaker’s conversation with Ivan, and the past stem participle živjala ‘live’ is the only available choice in such a context.

(76) Context: Yesterday in a supermarket you ran into your former school friend Ivan. Ivan told you that Maria, an old friend of yours, now lives in Paris. At the class reunion later that week, when someone asks you about Maria’s whereabouts, you say:

Maria živeela /# živjala / live.IMPERF.PRES.PPLE / live.IMPERF.PAST.PLE in Paris
‘Maria lives in Paris, [I heard].’

(77) Context: You accidentally ran into a former classmate Ivan, who told you that Maria, an old friend of yours, lived in Paris two years ago. She had moved recently, and Ivan does not know where she lives now. At the class reunion when someone asks you about Maria’s whereabouts, you say.

Maria živjala /# živeela / v Pariž.
‘Maria lived in Paris, [I heard].’

Not all Bulgarian verbs have distinct past and present stems. For example, the verb risuvam ‘draw’ has identical stems for the present and for the past and, therefore, the past temporal relation and the present temporal relation appear to be expressed by the same form, as in (78) and (79). The form risuval in (78) reports that the eventuality of drawing was ongoing at EAT, but in (79) the same form is used in a context when the eventuality of drawing is in the past with respect to EAT.

(78) Context: Your call your sister and ask her what her 8-year son Stojan is doing right now. She tells you that Stojan is drawing. When you report this conversation to your husband, you say:

Stojan risuval.
Stojan draw.IMPERF.PRES.PPLE
‘Stojan is drawing, [I heard].’
Context: You call her sister and ask what her 8-year son Stojan did over the weekend. She tells you that Stojan spend most of the weekend drawing. When her husband asks you what Stojan was doing over the weekend, you say:
Stojan risuval.
Stojan draw.IMPERF.PAST-PPLE
‘Stojan was drawing, [I heard].’

The contrast observed between (74) and (75), and between (76) and (77) shows that participial stems encode temporal relations. I argue that in the evidential paradigm, participial stems take upon the functions otherwise performed by tense morphemes in finite verbal forms, i.e. they specify the temporal relation between RT and the time of evaluation. The only difference is that for tenses in matrix clauses the time of evaluation is ST, while in evidential sentences, the time of evaluation is the time of evidence acquisition. The property of having an evaluation time, which is distinct from ST, makes evidential sentences more similar to constructions with propositional attitude verbs, rather than to simple non-embedded sentences.

5.1.4 Application of the analysis

Consider now how the assumptions made so far allows one to derive the temporal relations in evidential sentences, such as (80).

(80) Context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, is writing a book. At the class reunion later that week when someone asks you what Maria does, you say:
Maria pišela kniga.
Maria write.IMPERF.PRES-PPLE book
‘Maria is writing a book, [I heard].’

The imperfective aspect in (80) specifies that RT is a subset of ET (RT ⊆ ET). The present tense stem encodes that RT and EAT coincide (RT = EAT). From these two relations, it follows that the event of book writing is ongoing at the time at which the
speaker acquires the relevant evidence \((EAT \subseteq ET)\), which is exactly the temporal meaning expressed by (80).

One of the questions that still remain unanswered is what grammatical element determines the temporal location of \(EAT\) with respect to \(ST\). I discuss these relations in chapter 6, where I show that the relation between \(EAT\) and \(ST\) should be encoded in the meaning of the evidential operator. The next section discusses alternative analyses of temporal relations in the evidential construction, and shows that the current proposal, in which the stem of the participle encodes the temporal relation between \(RT\) and \(EAT\) fares better than its alternatives on empirical and theoretical grounds.

5.1.5 The alternative analyses of temporal relations in the evidential

In this section, I consider two alternative approaches to the temporal contribution of the evidential construction. The two alternative analyses maintain that different participial stems encode not a temporal but an aspectual relation. In traditional grammar, the distinction between the present and the past stem is analyzed as encoding the opposition between the imperfective and perfective grammatical aspect (e.g. Comrie 1976). This approach is presented in section 5.1.5.1. An alternative approach is advocated by Pancheva (2003) and Iatridou, Anagnostopoulou and Izvorski (2001). According to this approach, the present and the past participial stems, have semantic values of the imperfective and the neutral grammatical aspect, respectively. This approach is discussed in section 5.1.5.2.
5.1.5.1 The traditional grammar approach

The assumption that different participial stems encode the aspectual opposition between the imperfective and the perfective aspect could be motivated by the fact that the past and the present stems provide a basis from which the two past tenses, the Aorist and the Imperfect, respectively, are derived (e.g. Scatton 1993). These two past tenses are often characterized as encoding the aspectual opposition between the perfective and imperfective, respectively (e.g. Comrie 1976:72, but see Dahl 1985:82 for the critique of this analysis). In what follows, I discuss the aspectual approach to the meaning of stems i.e. pišel ‘write’ vs. pisl ‘write’ and show that the meaning of the two forms cannot be analyzed in terms of aspectual differences.

There are several reasons against analyzing participial stems as encoding the aspectual opposition between the perfective and the imperfective. First, under such an analysis the form pišel ‘write’ would be analyzed as an imperfective. Since perfective verb forms are usually derived from imperfective forms by prefixation, as the discussion in chapter 3 shows, such an analysis would be at loss to explain why the prefixation is not possible in (81).

(81) pišel → # na-pišel
    write.IMPERF.PRES.PLE  →  PERF-write.PRES.PLE

On the other hand, under the assumption that the form pišel ‘write’ encodes the present tense relation, the incompatibility of the perfective aspect with the present tense is expected in light of a more general pattern observed elsewhere in the grammar.

Second, under the aspectual analysis, the past stem participles, pisl ‘write’ and...
napisala ‘write’ would be both analyzed as perfective, and are predicted to be infelicitous in the contexts that target imperfective meaning, such as (82) and (83).

(82) Context: Two hours ago, you called your sister, a school principal. Her secretary picked up the phone and told you that Maria is very busy. She spent the last two hours writing an important speech, and now is gone for a meeting. Immediately after this conversation, your mom asks you what Maria was doing in the morning. You say:

Maria pisala reč.
Maria write.IMPERF.PAST.PLE speech
‘Maria was writing a speech, [I heard].’

(83) Context: Two hours ago, you called your sister, a school principal. Her secretary picked up the phone and told you that Maria is very busy. She spent the last two hours writing an important speech, and now is gone for a meeting. Immediately after this conversation, your mom asks you what Maria was doing in the morning. You say:

# Maria na-pisala reč.
Maria PERF-write.PAST.PLE speech
‘Maria was writing a speech, [I heard].’

The data in (82) and (83) show that contrary to the predictions of the aspectual approach, the form pisala ‘write’ is felicitous in the context that targets the imperfective meaning. In this respect pisala ‘write’ patterns together with the present stem participle pišela ‘write’ in (84), which suggests that both forms have the same, i.e. imperfective, aspectual contribution.

(84) Context: When you call you sister, her husband picks up the phone and tells you that your sister, a school principal, is busy writing an important speech, and cannot talk on the phone with you. Immediately after this conversation, your mom asks you what Maria is doing. You say:

Maria pišela reč.
Maria write.IMPERF.PRES.PLE speech
‘Maria is writing a speech, [I heard].’

The discussion in this section shows that the predictions of the aspectual approach are not born out. Even if we assume that stems carry aspectual information when they serve
as the building blocks from which the aorist and the imperfect forms are derived, this aspectual distinction is not carried over to participial forms, as observed in Comrie (1976:72).

In the next section, I discuss the assumption that the present and the past participial stems have the meaning of the imperfective and the neutral aspect, respectively.

5.1.5.2 Iatridou, Anagnostopoulou and Izvorski (2001) and Pancheva (2003)

In a series of works on the meaning of the perfect, Iatridou, Anagnostopoulou and Izvorski (2001) and Pancheva (2003) discuss the aspectual contribution of participles in the present perfect constructions. Since the same participial forms are used in the evidential construction, the analysis they propose could potentially be extended to the analysis of the evidential construction, and thus merits further discussion in the context of the current work.

The essence of Pancheva’s (2003) proposal is that past and present stems encode aspectual value, the neutral and the imperfective, respectively. The neutral makes “reference to the beginning point of an eventuality and part of its internal temporal structure but not to the end point” (Pancheva 2003:283). However, as the example with the past stem/neutral participial pisala ‘write’ in (85) shows, the form is grammatical even when the beginning point of the eventuality is not included in the reference interval.
(85) Kogato Ivan se e zapoznal s Maria, when Ivan REFL be.3SG.PRES meet.PERF.PAST.PPLE with Maria, tja e pisala pari vata si kniga. she be.3SG.PRES write.IMPERF.PAST.PLE first REFL book Polovinata ot knigata i veca bila na-pisana. half of book her already be. PLE PERF-write.PAST.PLE ‘When Ivan met Mary, she was writing her first book. Half of her book has already been written.’

In (85), the event of Maria’s writing a book has started before Ivan met Maria. Thus, the participial does not refer to the initial boundary of the writing eventuality but presents it as ongoing at the reference interval, which is the core property of imperfective verbs.

Another proposed difference between the imperfective and the neutral, mentioned in Pancheva (2003:283), is that “similarly to the perfective and unlike the imperfective, neutral sequences with perfective eventualities (e.g., when P(e)-perf.past, P’(e)-neutral.past is interpreted such that $\tau(e) < \tau(e')$”). This means that when a verb in the neutral aspect follows a perfective verb, the two events, denoted by the neutral verb and by the perfective verb, will be sequentially ordered with respect to one another (cf. Hinrichs 1981, Kamp and Roher 1983, Dowty 1986 on the temporal ordering of events in discourse). However, the past stem/neutral form pisala ‘wrote’ in (85) does not show the expected behavior. The event of Ivan’s meeting with Maria, and the eventuality of Maria’s writing a book are not sequentially ordered, but overlap, which, again, is a property expected of imperfective verbs.

Finally, the authors assume that if a verb does not have two morphologically distinct participial stems, which is the case with e.g. risuval ‘draw’ in (78) and (79), only the imperfective form is available, and the neutral is missing. The authors explain the absence of the neutral by the combinatorial restrictions imposed by the neutral aspect,
which is incompatible with some Aktionsarten types. Both papers mention in footnotes that the neutral applies to eventualities which are dynamic and durative (Iatridou et al. 2001, ft. 41: 197, and Pancheva 2003, ft. 14:302). However, this assumption neither explains the lack of the neutral form for the verb *risuvam* ‘draw’, which similarly to *piša* ‘written’ is dynamic and durative, nor does it explain the availability of the past stem/neutral form for verbs such as *živeja* ‘live’, which are durative but not dynamic. This discussion shows that the so-called neutral forms, analyzed here as past stem participles, consistently show the behavior characteristic of imperfective verbs, and argues against that the introduction of the neutral-imperfective opposition.

To summarize, the assumption that the past and present participial stems encode aspectual relations rather than temporal relations, as I argued above, has a number of theoretical and empirical problems, which makes their application to the meaning of the Bulgarian participles untenable.

### 5.1.6 Temporal relations: an interim summary

In this section I discussed the semantic contribution of tense and aspect morphology in the evidential construction. I showed that similar to finite verbal forms, participles in the evidential construction encode temporal and aspectual information. The joint contribution of the participial tense and aspect establish the temporal relation between ET and EAT in evidential sentences. I return to the question about temporal relations in evidential sentences in chapter 6, where I show how the relation between EAT and ST is derived. In the rest of the chapter, I focus on two issues: (i) what information source evidential sentences encode; (ii) what they signal about the epistemic commitment of the speakers.
5.2 Information source

Evidentiality is traditionally defined as a grammatical marker that encodes source of information (e.g. de Haan 1998, Aikhenvald 2004). Thus, a natural question that arises in relation to any evidential is what kind of information source it encodes. In contemporary literature, the discussion about information sources is usually based on the typological classification proposed in Willett (1988), represented in (86) (adopted from Willett 1988:57). I use this classification to facilitate the discussion about the range of meanings expressed by the evidential construction in Bulgarian.

(86)

According to Willett’s classification, the two major types of information sources are direct and indirect evidence. The main distinction between direct and indirect types of information is “whether the source of the speaker’s information is of a primary or a secondary nature” (Willett 1988:57). Indirect evidence is further subdivided into evidence from reports and evidence from inferences. An overview of the history of study of evidentiality in Bulgarian (e.g., Jakobson 1957, Aronson 1967, Comrie 1976:109, Dahl 1985:150-152, Friedman 1986, 2004, Izvorski 1997, Sauerland and Schenner 2007)
reveals that the Bulgarian evidential construction has been analyzed as encoding different types of information sources. Jakobson (1957) uses the term “evidential” for the form zaminala, which he translates as “it is claimed that it has sailed” (Friedman 2004:102). Such a translation implies that the evidential construction in Bulgarian can encode information from reports. In traditional Bulgarian grammar, the evidential paradigm is referred to as preizkazno naklonenie “renarrated mood” (Bulgarian academy grammar 1994, book 2:351). Similar terminology is used in Scatton (1991:215), who applies the term “renarrated” to the Bulgarian evidential construction, and by Dahl (1985:150-152), who uses the term “quotative”. Comrie (1976:109) uses the term “inferrential” in his discussion of the Bulgarian evidential system, arguing that the Bulgarian evidential construction is used when the speaker makes a statement based on inferences. He observes that “in Bulgarian grammar the term preizkazvane, literally ‘renarration’ is used, although there is no necessary connection with indirect speech.” (Comrie 1976:108, ft. 1). Considered in the context of Willett’s typology, these previous analyses suggest that the evidential construction in Bulgarian can encode both inferential and reportative information.

In the contemporary semantic literature, the Bulgarian evidential construction has been analyzed as encoding indirect information source, subsuming both inference and report (Izvorski 1997, Sauerland and Schenner 2007). The data in (87) and (88) show that the evidential construction in Bulgarian is compatible with reportative and inferential evidential contexts, thus providing support for Izvorski’s (1997) and Sauerland and Shenner’ (2007) classifications.
(87) Reportative evidential context: Your sister told you over the phone that her daughter Maria is practicing for an upcoming piano performance right now and therefore cannot talk on the phone with you. After this conversation, your mom asks you what Maria is doing. You say:

Maria svirela na piano.
Maria play.IMPERF.PRES.PLE on piano
‘Maria is playing the piano [I heard].’

(88) Inferential evidential context: Your niece Maria stays with you over the summer. She usually either stays in her room and reads or plays the piano in a practice room. When you come home from work, you see that Maria is not in her room but hear piano music from somewhere. It must be the case that she is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say:

Maria svirela na piano.
Maria play.IMPERF_PRES.PLE on piano
‘Maria is playing the piano [I inferred].’

In (87) the form *svirela* ‘play’ signals that the speaker’s source of information is hearsay, while in (88), the same form expresses that the speaker’s basis for the claim is inference.

The analysis of the Bulgarian evidential as indirect, advocated in Izvorski (1997) and Sauerland and Schenner (2007), is challenged by the fact that the Bulgarian evidential construction is also used to report on-going perceptual experience (cf. Maslov 1956, Darden 1977). In (89), for example, the speaker uses the evidential form *svirila* ‘play’ to signal that she perceives the event of Maria’s playing the piano directly.

(89) Direct evidential context: Your niece Maria, who is an excellent piano player, stays with you over the summer. Due to the recent defeat in a prestigious piano competition, Maria quit playing for a while. Today, while passing by Maria’s room, you see her playing the piano. You say to yourself:

Maria svirela na piano!
Maria play.IMPERF_PRES.PLE on piano
‘Maria plays the piano [I see]! ’

The form *svirela* ‘play’ in (89) is identical to the form used in inferential and direct evidential contexts in (87) and (88). The only difference between the inferential and
reportative examples on the one hand and the direct evidential example on the other is that the latter is pronounced with the exclamative intonational contour (discussed in section below). Intonational characteristics aside, the construction is used to express direct perceptual experience of the event. As Darden (1977) points out, the evidential form *valjalo* ‘rained’ pronounced with the exclamative intonation “can be, and normally is, uttered while watching it rain” (Darden 1977:57). The relevant context is provided in (90).

(90) Direct evidential context: When you entered the house an hour ago it was warm and sunny outside. Half an hour later, when you exit the house, you see that the weather has changed drastically, and it is raining now. You exclaim:
   To valjalo! It rain.IMPERF-PRES-PLE
   ‘It is raining, [I see]!’

The constructions in (89) and (90) are similar to the previously discussed evidential sentences in two respects. First, they use evidential morphology, and second, to be uttered felicitously, they require the presence of some salient concrete evidence. Therefore, there is no *a priori* reason not to classify these sentences as evidential.

In what follows, I discuss in more detail different nuances associated with the distribution of the evidential construction in inferential (section 5.2.1), reportative (section 5.2.2), and direct evidential contexts (section 5.2.3).

### 5.2.1 Inferential evidential contexts

According to Willett’s typological classification (Willett 1988), inferential evidentiality has two different subtypes, inference from result and inference from reasoning, defined in (91).
(91) From Willett (1988:96)

a. Inference from results: the speaker infers the situation described from the observable evidence (i.e. from perception of the results of the causing event or action.)

b. Inference from reasoning: the speaker infers the situation described on the basis of intuition, logic, a dream, previous experience, or some other mental construct.

The classification in (91) is incomplete. Such a classification excludes cases when the speaker makes an evidential statement based on some observable evidence and at the time of her statement the eventuality under discussion is still ongoing. Possible contexts include smelling the food and inferring that your roommate is cooking, seeing a monthly schedule of your friend and inferring that she is taking ballet classes, seeing people on the street bundled up and inferring that it is cold, etc. Evidential sentences in Bulgarian appear in inferential contexts of two types: (i) when the speaker makes an inference about the eventuality after its completion, as described by Willett, and (ii) when the speaker makes an inference about the ongoing event. The two types of contexts are given in (92) and (93).

(92) Inferential evidential context: Your niece Maria stays with you over the summer. When you come home from work, you see that the lid of the piano is open, and there are musical scores everywhere. It must be the case that in your absence Maria played the piano. When your husband calls, and asks you what Maria did during the day, you say:

Maria svirila na piano.
‘Maria played the piano, [I inferred].’

(93) Inferential evidential context: Your niece Maria stays with you over the summer. She often plays the piano in a practice room. When you come home from work, you hear music from Maria’s practice room. It must be the case that she is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say:
Maria svirela na piano.
Maria play.IMPERF.PRES.PLE on piano
‘Maria is playing the piano [I inferred].’

At the time of the inference in (92), the event inferred, i.e. Maria’s playing the piano, is
in the past. In (93), on the other hand, the event inferred is ongoing at the time of the
inference. In order to accommodate the latter type of inferential reading, I forgo Willett’s
terminology inference from results, and adopt evidence-based inference instead.

Turning now to inference from reasoning, evidential forms used in such contexts
signal that the speaker makes an inference based on conjecture and in the absence of
perceptually observable clues. The Bulgarian evidential construction cannot be used in
such contexts (Izvorski 1997). Thus, the evidential form izjal ‘eat’ is infelicitous in (94),
where the speaker makes a statement based on what she knows about Ivan’s habits
(examples in (94) and (95) are adapted from Izvorski 1997 and Matthewson et al. 2008).

(94) Context: Yesterday there was a full tray of baklava in the fridge, but now it is all
gone. You know that baklava is Ivan’s favorite desert. When Maria asks you who
ate the baklava, you say:
# Ivan iz-jal baklavata.
Ivan PERF-eat.PLE baklava
Intended: ‘Ivan ate the baklava, [I inferred].’

To report reasoning-based inferences, the sentence with the modal verb trjabva ‘must’,
such as (95), should be used instead (see footnote 32, and Smirnova (2011a), (2011b) on
the discussion about the division of labor between the evidential and modals).

(95) Context: Yesterday there was a full tray of baklava in the fridge, but now it is all
gone. You know that baklava is Ivan’s favorite desert. When Maria asks you who
ate the baklava, you say:
Ivan trjabva da e iz-jal baklavata.
Ivan must SUBJ be.3SG.PRES PERF-eat.PLE baklava.
‘Ivan must have eaten the baklava.’
The evidential form *izjal* ‘eat’ can only be used felicitously if the speaker bases her statement on some observable evidence, as in (96).

(96) Context: Yesterday there was a full tray of baklava in the fridge, but now it is all gone. You know that baklava is Ivan’s favorite desert, and when you go to his room to talk to him, you discover baklava crumbles all over the place. When Maria asks you who ate the baklava, you say:

Ivan iz-jal baklavata.
Ivan PERF-eat.PLE baklava
‘Ivan ate baklava, [I inferred].’

In some languages, such as St’át’imcets, both reasoning-based and evidence-based information can be expressed by the same evidential morpheme. The speaker in (97) uses the inferential evidential *k’a* to present information which is based purely on his assumptions about John’s preferences and previous experience.

(97) St’át’imcets, from Matthewson et al. (2008:205), ex. 11(a)

Context: You had five pieces of ts’wan (wind-dried salmon) left when you checked yesterday. Today, you go to get some ts’wan to make soup and you notice they are all gone. You are not sure who took them, but you know that John is the person in your household who really loves ts’wan and usually eats lots whenever he gets a chance.

*ts’aqw-an’-ás k’a i ts’wán-a kw s-John*

eat-DIR-3ERG INFER DET.PL wind-dried.salmon-EXIS DET NOM-John

‘John must have eaten the ts’wan.’

In (98), the speaker finds some visual cues, i.e. pieces of salmon in John’s room, based on this visual information, makes an inference that John has eaten the fish. This inference is reported with the inferential evidential marker *k’a*.

(98) St’át’imcets from Matthewson et al. (2008:206), ex. 12(a)

Context: Same as above, except that this time, it’s not just that you think it must be John because he’s the one who likes ts’wan. This time, you see the ts’wan skins in his room.

*ts’aqw-an’-ás k’a i ts’wán-a kw s-John*

eat-DIR-3ERG INFER DET.PL wind-dried.salmon-EXIS DET NOM-John

‘John must have eaten the ts’wan.’
These data show that Bulgarian is typologically different from St’át’imcets in that the evidential construction cannot be used to report reasoning-based inferences.

To summarize, the evidential construction in Bulgarian can express inferential meaning. Only inferences based on concrete observable evidence can be felicitously reported with evidential sentences. Moreover, there is no requirement that the event under discussion has terminated before the inference is made. In fact, evidential sentences in Bulgarian felicitously express inferences about events that are past or still ongoing at the time of the inference.

5.2.2 Reportative evidential contexts

According to Willett’s typological classification, reportative evidential meaning comes in several varieties: secondhand reports, thirdhand reports, and folklore. The evidential construction in Bulgarian can appear in a variety of reportative contexts that, besides the information sources mentioned in Willett, include also religious literature, and history textbooks, as the examples in this section show. In (99), the speaker uses the form *bila* bolna ‘be sick’ for a secondhand report.

(99) Secondhand reportative evidential context: Maria’s mother told you over the phone that Maria is sick. When one of your school friends asks you why Maria is not at school today, you say:

Maria bila bolna.

*Maria be.IMPERF.PLE sick*  
‘Maria is sick, [I heard].’

In (100), the evidential form *bila* is used to report thirdhand information.

(100) Thirdhand reportative context: Your friend Ivan told you that when he called Maria this morning, her mother picked up the phone and told him that Maria is sick. At the rehearsal later today, when your friend wonders why Maria is absent, you say:

Maria bila bolna.
Maria bila bolna.
Maria be.IMPERF.PLE sick
‘Maria is sick, [I heard].’

Evidential forms are also frequent in a variety of literary contexts, such as folk tales, songs, and legends. The example in (101) is a first sentence of a folk tale. The evidential form imalo ‘have’ signals that the speaker heard this information from someone else.

(101) Bulgarian academy grammar (1994:364)
Edno vreme imalo dvama bratja: po-star i po-mlad.
Once.upon time have.PLE two brothers: older and younger
‘Once upon a time there were two brothers, an older one and a younger one.’

The example in (102) is an excerpt from an old Bulgarian folk song. The evidential form nabrala ‘gather’ in the second line of the song signals that the speaker learned about the events in the song from someone else.

(102) Bulgarian academy grammar (1994:364)
Če vleze Janka v gradinka, so enter.IMPERF.3SG.PAST Janka in garden
na-brala cvete vsjakakvo,
PERF-collect.PAST.PLE flowers different
‘Janka entered the garden and collected different flowers.’

Note that the first verb in (102), vleze ‘enter’, does not bear participial morphology and unlike nabrala ‘gather’ is realized in the indicative mood. According to the Bulgarian academy grammar, the differences are due to the fact that evidentiality is a relatively new phenomenon in the Bulgarian grammar, and their appearance in old Bulgarian songs was unsystematic, and often governed by the consideration of rhyme preservation.

Besides folklore, the evidential construction expresses reportative meaning also in two other types of narrative contexts, history textbooks and religious literature (cf. Givón 1982 on the usage of the reportative evidential in the Life of Buddha). In (103), from a
Bulgarian history textbook, the author uses the evidential form *pobedil* ‘won’ to describe a victory of the Bulgarian ruler Khan Asparukh over the Byzantine emperor Constantine VI in 681.

(103) [Passage from a history textbook][24]

No kolkoto i malko da znaem za tazi epohalna bitka,
but whatever and little SUBJ know.1PL.PRES about this epic battle,

nesämneno edno - Asparukh *pobedil*
unquestionable be.3SG.PRES one - Asparukh win.PERF.PLE

v prjako sraženie samija vizantijski imperator.
in direct battle himself Byzantine emperor
‘No matter how little we know about this epic battle, one thing is unquestionable – Asparukh defeated the Byzantine emperor in the battle.’

The example in (104), taken from a religious website for children, re-narrates a biblical story from the Old Testament by using the evidential form of the verb *zapovjadal* ‘ordered’.

(104) Gospel according to Matthew, chapter 26; Bible for children[25]

Iisus zapovjadal na Petăr da pribere meča v nožnicata.
Jesus order.PRF.PAST.PLE to Peter SUBJ place.3SG.PRES sword in scabbard
‘Jesus ordered Peter to place the sword in scabbard.’

This discussion shows that the evidential construction in Bulgarian can appear in a variety of reportative contexts, including second- and third-hand reports, folklore, history textbook, and religious literature.

5.2.3 Direct evidential contexts

According to Willett’s definition, by using a direct evidential sentence, “the speaker

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claims to have perceived the situation described, but may not specify that it is sensory evidence of any kind” (Willett 1988:96, the emphasis is original). There are several types of perceptual experience, listed in (105), that can be reported with evidential sentences.

(105) From Willett (1988:96)
   a. Visual evidence: the speaker claims to have seen the situation described.
   b. Auditory evidence: the speaker claims to have heard the situation described.
   c. Sensory evidence: the speaker claims to have physically sensed the situation described.

The examples in this section show that the Bulgarian evidential construction is used to report a variety of perceptual information sources, visual, auditory, gustatory, and tactile, and thus falls squarely into the category of direct evidentials. In all such contexts evidential sentences are pronounced with the exclamative intonational contour, marked as ‘!’ (I return to the question about intonation below).

The data in (106) and (107) show that evidential forms can be used to report direct visual perception of the event.

(106) Context: You go to a soccer game and see your brother Stojan among other players. Stojan is an excellent soccer player, but he told you only an hour ago that he is going to staying home and prepare for the exam. Upon seeing him on the soccer field, you say:
Stojan igrael futbol!
Stojan play.IMPERF.PRES.PLE soccer.
‘Stojan is playing soccer, [I see]!’

(107) Context: Last night your went to a party. One of the guests at the party was Lady Gaga. Unfortunately, you mixed incompatible beverages and have very poor memory of the evening. Today, your friends show you a picture of you shaking hands with Lady Gaga. Upon seeing the picture, you exclaim:
Zdravistval sâm se săs Lady Gaga!
Shake.hands.IMPERF.PRES.PLE be.1SG.PRES REFL with Lady Gaga!
‘I was shaking hands with Lady Gaga, [I see]!’

In (106), the speakers uses the evidential form igrael ‘play’ to report the state of affairs.
for which she has direct visual evidence. In (107), the speaker uses the evidential form "zdrávistval săm se ‘shake hands’ to comment on the observed event. In (108) and (109) the speaker’s source of information is auditory perception.

(108) Context: You visit your brother, who works on a church restoration in a remote Bulgarian village. At midday, you hear the church bell ring. You exclaim:
Tja kombanata zvânjala!
It bell ring.IMPERF.PRES.PLE
‘The bell is ringing, [I hear]!’

(109) Context: You are attending a rehearsal of your friend Maria, a professional opera singer. You always assumed that Maria is a soprano, but as you listen to her now, you realize that her voice is much higher than you thought. You exclaim:
Maria bila koloraturno soprano!
Maria be.PLE coloratura soprano!
‘Maria is coloratura soprano, [I hear]!’

In (108), the speaker hears the bell ring, and uses the participial form zvânjala ‘ring’ to report her perceptual experience. In (109), the speaker hears Maria’s singing and reports her auditory perception with the participial form bila koloraturno soprano ‘be coloratura soprano’.

Evidential forms can also be used to report gustatory perception, as in (110), and tactile perception, as in (111).

(110) Context: You and your friends are cooking dinner together. According to the recipe, the dish should cook for 20 more minutes. However, when you taste the dish, you realize that it is ready. You say to yourself:
Tja manžata bila gotova!
It dish be.PLE ready
‘The dish is ready, [I taste]!’

(111) Context: There is a power outage in your neighborhood and it is pitch dark in your house. You just cleaned the floor a couple of hours ago, but when you step on it now, your feet stick to it. You exclaim:
Poda bil lepkav!
Floor be.PLE sticky.
‘The floor is sticky, [I feel]!’

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In (110), the evidential form *bila gotova* ‘be ready’ indicates that the speaker bases her claim on gustatory sensation. In (111), the speaker reports tactile sensation by using the evidential form *bil lepkav* ‘be sticky’.

These data show that evidential forms in Bulgarian are consistently used to report direct perceptual experience, and thus, according to Willett’s typology, should be classified as direct evidentials. Additional support for the classification of evidential constructions in (106) – (111) as direct evidentials comes from the restriction on what temporal forms can appear in direct evidential contexts. Note that according to Willett’s definition of direct evidentiality, ET of the observed eventuality must overlap with the time at which the speaker experiences the relevant sensation. Only present stem participles in Bulgarian can express such a temporal relation. The past stem participles signal that the eventuality under discussion was ongoing at some contextually salient reference time, located in the past of EAT. Thus, if the evidential sentences in Bulgarian can express direct perception, then only present stem participles should be possible in such contexts. The data in (112) confirm this prediction.

(112) Context: Your nephew Stojan spends most of the time playing video games. When you pass by his room, you see him reading a book. You exclaim:

Stojan četjal                        / # čel                            kniga!
Stojan read.IMPERF_PRES.PLE / read.IMPERF_PAST.PLE book
‘Stojan is reading a book, [I see]!’

In (112), the speaker reports that she directly observes the event of Stojan reading by using the present tense participial *četjal* ‘read’. The past stem participial *čel* ‘read’ is infelicitous in the context in (112). The form *čel* ‘read’ can be felicitously used if the event of reading has terminated prior to the time at which the speaker acquired the
evidence, but such a scenario is not compatible with a direct evidential context.

(113) Context: Your nephew Stojan spends most of the time playing video games. Your sister tells you that Stojan spent two hours this morning reading a book. When you hear the news, you exclaim:

Stojan # četjel /čel/ kniga!
Stojan    read._PRES._IMPERF.PLE / read._PAST._IMPERF.PLE    book
‘Stojan was reading a book, # [I see]! / [I hear]!’

The fact that the distribution of forms obeys the temporal constraint on the relation between EAT and ET imposed by the definition of direct evidentiality, further suggests that evidential forms in Bulgarian do express direct evidential meaning.

Finally, a cross-linguistic comparison shows that the context of distribution for direct evidential sentences in Bulgarian is compatible with contexts in which direct evidentials are used in other languages. In Tuyuca, the morpheme wi signals that the speaker directly observed that the person under discussion playing soccer (cf. Bulgarian example in (106)).

(114) Tuyuca, from Barnes (1984:257); cited in Faller (2002:42)
Visual:
díiga apé-wi.
‘He played soccer.’ (I saw him play)

In St’át’imcets, the evidential marker lákw7a analyzed by Matthewson as expressing direct evidentiality can express direct perception to the exclusion of the visual perception. Thus, the ground for making an evidential statement in (115) is the speaker’s tactile perception (cf. Bulgarian examples in (110) and (111)).

(115) Matthewson (2010a:5), ex. (12f)
Context: You are blindfolded. I ask you to tell me which of three cups a stone is in. You feel around and feel the stone.
nilh lákw7a    Its7a
FOC lákw7a here
‘It’s in this one.’
In Cheyenne, the meaning of direct evidential morpheme is characterized as follows by Murray: “this default, unmarked evidential carries a commitment that the speaker has direct evidence for the proposition in the scope of the evidential, e.g., ‘he sang’ for [116])” (Murray 2010:22).

(116) Cheyenne, from Murray (2010:22), Table 2.2., ex. (a)
É-néméne-Ø
3-rain-DIR
‘He sang, I’m sure.’

As Murray shows, an unmarked direct evidential is compatible not only with direct perceptual experience, as in (116), but also with what can be characterized as the speaker’s internal state of mind, as in (117).

(117) From Murray (2010:27, 2.20ii
É-tonóom-e-Ø
3-wait.for-PSV-DIR
‘He is expected.’

The example in (117) is from an excerpt from a story about Turtle Moccasin, narrated with reportative evidential forms. According to Murray, “the middle sentence of this excerpt appears with an unmarked direct evidential, indicating that the speaker has direct evidence that Turtle Moccasin is expected (specifically, the speaker herself is waiting for him)” (Murray 2010:27). Thus, in Cheyenne, a direct evidential can express the type of experience that is not necessarily sensory. Bulgarian appears to be more restrictive than Cheyenne in that the evidential construction cannot be used to report the speaker’s internal state in the absence of any concrete evidence, as (118) shows.

(118) Context: There is a bad flu going around. You got a flu shot last week, but you feel sick, and the symptoms you have are similar to the flu symptoms. Upon entertaining the possibility that you are sick, you exclaim:
Bila съм болна!

be.PLE be.IMPERF.3SG.PRES sick

Intended: ‘I am sick, [I infer]!’

(119) Context: Swollen eyes are first symptoms of the flu that is going around. You observe that your eyes are swollen. You got a flu shot last week. Upon entertaining the possibility that you are sick with the flu despite of the shot, you exclaim:

Bila съм болна!

be.PLE be.IMPERF.3SG.PRES sick

‘I’m sick, [I infer]!’

Thus, the evidential form in (118) is infelicitous, because the evidential statement is not supported by any visual clues. On the other hand the evidential statement in (119) is based on direct perception.

To summarize, the examples discussed in this section show that evidential forms in Bulgarian occur in contexts when the speaker’s basis for assertion is direct perception. Several factors suggest that the evidential sentences discussed in this section should be analyzed as direct evidentials: (i) the distribution of these sentences meets Willett’s criteria for direct evidentials; (ii) the temporal restrictions, i.e. the unavailability of past stem participles in direct evidential contexts is expected in light of the restriction on direct evidential meaning, i.e. the temporal overlap between the eventuality and the evidence acquisition time; (iii) the distribution of evidential sentences in Bulgarian parallels the distribution of direct evidentials in other languages. However, direct evidential sentences in Bulgarian differ from those in other languages in that they are pronounced with the exclamative intonational contour. The co-occurrence of the exclamative intonation in evidential contexts in Bulgarian has been extensively discussed in the descriptive literature under the rubrics of “mirativity” (e.g. Weigand
1925, Darden 1977, Friedman 1980, Guentchéva 1996). Mirativity is often defined as a grammatical category that marks information “which is new or unexpected to the speaker” (DeLancey 2001:370). In the next section, I discuss the question of the correlation between mirativity and evidentiality. I consider and reject the analysis according to which direct evidential sentences with exclamative intonation are analyzed as mirative and not evidential (cf. Demina 1959).

5.2.3.1 Mirativity and direct evidentiality

As the discussion in the previous section has shown, there is solid evidence for the analysis of evidential sentences in (106) – (111) as direct evidentials. However, since evidential sentences in such contexts are always associated with exclamatory intonation, an alternative analysis, which maintains that in the above contexts evidential sentences are simply mirative sentences is possible, and has been previously proposed by Demina (1959) for Bulgarian.

The question of the categorical status of mirativity and its relation to evidentiality has been recently discussed from a cross-linguistic perspective by DeLancey (1997), (2001), Lazard (2001), Peterson (2010a), and Peterson (2010b). In a series of works DeLancey, drawing on data from Balkan languages, such as Bulgarian and Turkish, as well as Lhasa Tibetan, Hare (Athapaskan), and others, argues that mirativity should be recognized as an independent category (the same position is advocated in Peterson 2010a). For DeLancey, the primary function of an evidential system is to express the source of information, while mirativity marks information which is novel and unexpected (DeLancey 2001:370). Demina (1959) in her discussion of evidential
category in Bulgarian uses similar arguments, and suggests that evidential forms in direct contexts should be analyzed as mirative. However, if the primary function of the mirative category is to express surprise on the part of the speaker, then any sentence that expresses surprise, irrespective of whether it is an evidential or not, should be a member of this category. Thus, the indicative sentence in (120), the inferential evidential sentence in (121), and the reportative evidential sentence in (122) would be members of the category mirative.

(120) Indicative:
Maria piše kniga!
‘Maria is writing a book!’

(121) Inferential evidential context: Your roommate Maria spends a lot of time working on her laptop. She never tells you what she does. Today, while cleaning her room you discover her calendar, in which large chunks of time are devoted to writing a book. Upon the discovery you exclaim:
Maria pišela kniga!
‘Maria is writing a book, [I infer]!’

(122) Reportative evidential context: You accidentally ran into your former classmate Ivan. Ivan told you that Maria, an old friend of yours, with whom you lost contact ten years ago, has a successful academic career. In fact, right now she is busy writing a book. Upon hearing this news, you exclaim:
Maria pišela kniga!
‘Maria is writing a book, [I hear]!’

These data show that the expression of surprise is not contingent on evidential morphology in Bulgarian, but can be expressed with both indicative and evidential sentences. Moreover, it is not the case that mirative meaning, understood in terms of surprise, overrides the contribution of evidential morphology. When the evidential sentence is expressed with the exclamative intonational contour, the evidential
morphology makes the expected semantic contribution. In (121), the evidential form pišela ‘write’ signals that the speaker’s source of information is inference, and in (122), the speaker bases her statement on a report from someone. These data argue that if mirativity should be recognized as an independent category, it is not at the expense of evidentiality. The expression of surprise and the expression of information source are distinct concepts, as DeLancey (2001) has pointed out. In DeLancey’s system, the evidential marker in Bulgarian would be classified as a member of both, mirative and evidential categories.26

The question of why evidentiality and mirativity co-occur has been a matter of an intense debate in the literature (DeLancey 2001, Lazard 2001). Most recently, Peterson (2010b) proposed a pragmatic account of mirativity and its relation to evidentiality. The core idea is that in languages that grammatically express evidentiality (Bulgarian is one such language), mirativity is derived as a conversational implicature from the evidential meaning. His analysis of evidentiality and mirativity can be summarized as in (123).

(123) From Peterson (2010b:133), ex. (9)
   a. In asserting EV(p), the Speaker does not know if p is true or false: Evidential without any implicated meaning.
   b. In asserting EV(p), the Speaker knows p is true: mirativity as Quantity implicature.

Consider how the mirativity implicature is calculated for an evidential sentence in Gitksan. Evidential morpheme ni akw expresses sensory evidence to the exclusion of direct perception of the event (Peterson 2010b). In Peterson’s analysis (Peterson 2010b) this restriction is encoded as a presupposition. In (124), ni akw specifies that the speaker

---

26 DeLancey does not discuss this aspect for Bulgarian, but he classifies the evidential marker miş in Turkish as “a sort of mixed evidential/mirative category” (DeLancey 2001:377).
has perceptual evidence for the proposition he reports. This evidential morpheme can be felicitously used in the context when e.g. John’s car is in the driveway (124a). By using the evidential sentence in such a context, the speaker asserts that John is here (124b). The sentence does not have mirative meaning in such a context (124c).

(124) Gitksan, from Peterson (2010b:142), ex. (29)

\begin{tabular}{l}
\textit{mi akw}=hl witxw=t John \\
EVID=CND arrive=PND John \\
‘John must be here’/ ‘Looks like John’s here’
\end{tabular}

a. PRESUPPOSITION: The speaker has indirect sensory evidence of John’s presence (his pick-up in the driveway; you can hear loud music playing inside his house).
b. ASSERTION: John is here.
c. NON-MIRATIVE

When the same sentence is uttered in the context when the speaker sees John staying in a doorway, i.e. has visual perception of the event, the usage of the evidential morpheme produces mirative meaning, as in (125).

(125) Gitksan, from Peterson (2010b:143), ex. (30)

\begin{tabular}{l}
\textit{'nakw}=hl witxw=t John \\
EVID=CND arrive=PND John \\
‘John’s here!’/ ‘Look who’s here!’/ ‘I see John’s here!’
\end{tabular}

a. PRESUPPOSITION: The speaker has indirect sensory evidence (John is standing in the doorway; his pick-up in the driveway; you can hear loud music playing inside his house).
b. ASSERTION: John is here.
c. MIRATIVE

According to Peterson, seeing John in the doorway is an indirect sensory evidence for the proposition ‘John is here.’ This is why the indirect evidential \textit{mi akw} is licensed in the first place. To me, it is not clear why direct perception of John is classified as indirect evidence.

The mirative meaning arises in (125) as a consequence of flouting the maxim of
Quantity (Peterson 2010a:142). When the speaker uses the evidential morpheme in (103), he knows that the proposition expressed by the evidential sentence is true, and is part of the common ground in (126).

(126) Peterson (2010b:143), ex. (32)
CG = \{the proposition that John is standing in the doorway; the proposition that John’s pick-up is in the driveway; the proposition that there is loud music playing inside his house; etc...\}

By asserting a statement that is already part of the common ground, the speaker violates the maxim of Quantity – he is being too informative. The mirativity implicature is calculated through the following steps:

(127) Peterson (2010b: 143-144), ex. (33)
a. This information expressed by the proposition is relevant to the context, and the speaker has (sensory) evidence for the proposition’s truth.

b. A cooperative speaker generally does not make additional, redundant statements that all the discourse participants already pragmatically presuppose.

c. The speaker must be conversationally implicating that they were previously unaware of this fact, and its discovery possibly counters their expectations.

Peterson’s analysis, while providing interesting insights on the relation between mirativity and evidentiality, cannot be applied to Bulgarian. The core of his analysis is the assumption that the mirative arises when the speaker uses the evidential in situations when she knows that $p$ is true. In Bulgarian, the expression of surprise is compatible with e.g. inferential evidential contexts, but such contexts are incompatible with the situations in which the speaker knows that $p$ is true.\(^{27}\) Thus, if we apply Peterson’s analysis to Bulgarian, we would not explain why the sentence in (120) has a surprise component.

\(^{27}\) I show in chapter 6 that the evidential cannot be used in inferential and in direct evidential contexts if the speaker *knows* that the proposition $p$ in the scope of the evidential is true.
Moreover, in reportative contexts, the speaker can use an evidential expression with the exclamatory intonational contour irrespective of her knowledge state. In (128), the speaker uses the exclamative evidential construction in the situation in which she knows that \( p \) is false (contexts adapted from Faller 2002:191, ex. (152)).

(128) Context: Your friend Ivan had to work hard to support his family. His wealthy uncle died, but didn’t leave him any money. When you speak on the phone with your former classmate Maria, she tells you the gossip that Ivan had inherited millions from his uncle. You know that this is not true:

\[
\text{OSTAVIL } \text{MU} \text{ Miliuni! Ta } \text{TOJ} \text{ PUKNATA} \text{ STOTINKA} \text{ NE } \text{ MU} \text{ E}
\]

\[
\text{LEAVE.PERF.PAST.PLE} \text{ HIM} \text{ MILLION EMPH} \text{ HE CRUNCHED} \text{ CENT} \text{ NOT} \text{ HIM} \text{ BE.3SG.PRES}
\]

\[
\text{OSTAVIL!}
\]

\[
\text{LEAVE.PERF.PAST.PPLE}
\]

‘He left him millions (I hear)! He didn’t leave him a red cent.

In (129), the speaker uses the evidential sentence when she is uncertain about the status of \( p \).

(129) Context: Your classmate Maria, tells you over the phone that Ivan, a good friend of yours, had inherited millions from his uncle. You thought that Ivan’s uncle was poor, and upon hearing the news, you say:

\[
\text{OSTAVIL } \text{MU} \text{ MILIONI! NE ZNAM}
\]

\[
\text{LEAVE.PERF.PAST.PLE} \text{ HIM} \text{ MILLION NOT KNOW.IMPERF.1SG.PRES}
\]

\[
\text{DAI} \text{ DA} \text{ VJARVAM} \text{ NA TOVA.}
\]

\[
\text{WHETHER} \text{ SUBJ BELIEVE.IMPERF.1SG.PRES TO THIS}
\]

‘He left him millions, [I hear!] I don’t know if I should believe this.’

If Peterson’s analysis is applied to Bulgarian, we would not be able to explain why a mirative reading arises in these contexts.

More generally, while the question of why “mirativity is parasitic on evidentiality” (Peterson 2010b:132), at least in some languages, is important, it is worth emphasizing that mirativity is not contingent on evidentiality. In Bulgarian, evidential sentences can be mirative (121) and (122) or non-mirative (80), and mirative sentences can be evidential (cf. (121) – (122)) or non-evidential (120). Thus, the study of the mirativity-
evidentiality relation can only partially answer the question about the nature of the mirative meaning. The second part of the task would be to explain why mirative meaning can be expressed with e.g. indicative sentences. The latter is actually a more common means for the expression of surprise, as it is used in both languages that do not have the grammatical category of evidentiality (cf. English *She plays the piano!*) and in the languages that grammatically encode evidentiality (cf. the Bulgarian mrative indicative sentence in (120)).

In conclusion, this discussion shows that the assumption that evidential forms with exclamative intonation should be classified as mirative is hard to maintain in light of the fact that mirativity can also be expressed by indicative verb forms, in the absence of evidential morphology. Thus, I assume that Bulgarian evidential sentences with exclamatory intonation that appear in the contexts in which the speaker directly witnesses the event she communicates should be analyzed as direct evidentials.

The discussion in sections 5.2.1 – 5.2.3 has shown that the Bulgarian evidential can express a variety of information sources. The ability to express such a wide range of evidential meanings raise the question of whether the Bulgarian evidential construction should be considered an evidential. After all, what kind of evidential is it, if it expresses both direct and indirect information source (cf. Willett 1988), a critic would ask. I address this question in section 5.2.4.

5.2.4 The Bulgarian evidential is a ‘true’ evidential

According to the predictions made by Willett’s typological classification, an evidential morpheme or construction should be compatible with a particular information source to
the exclusion of other information source types. As Faller (2002) points out, the system predicts that the same evidential expression would be compatible with different information sources only if the sources have one mother node (Faller 2002:7). Thus, we expect to find languages in which the evidential morpheme encodes indirect evidence, i.e. report and inference. However, the existence of a language in which a single form is compatible with a variety of evidential meanings, such as direct and indirect, is incompatible with Willett’s system. Based on this, one might suggest that the Bulgarian evidential might not be an evidential, after all. In what follows, I first discuss various problems with Willett’s typology that call for an alternative approach to typological classification, thus showing that there are no good arguments against the classification of the Bulgarian evidential construction as evidential. I then present positive arguments for the analysis of the Bulgarian constructions as ‘true’ evidential.

While Willett’s typological classification provides a useful tool for studying the range of information sources expressed by evidential morphemes in a language, it has been shown recently that the system is ill-equipped to account for the full range of meaning expressed by evidentials in such languages as Quechua (Faller 2002), Kashaya (Oswalt 1986, discussed in Faller 2002), Korean (Lee 2010) and St’át’imcets (Matthewson 2010a).

Faller (2002) shows that the evidential morpheme -mi- in Quechua, referred to as Direct, but analyzed by Faller in terms of the best possible grounds, is compatible with direct (130) and reportative (131) information sources.
(130) Faller 2002:18, ex. (10)
Pilar-qa t’anta-ta-n mikhu-rqa-n.
Pilar-top bread-acc-mi eat-pst1-3
p = ‘Pilar ate bread.’
ev = speaker saw that p

(131) Faller 2002:127, ex. (95a)
Paqarin Ines-qa Qusqu-ta-n ri-nqa.
tomorrow Ines-top Cuzco-acc-mi go-3fut
p = ‘Ines will go to Cuzco tomorrow.’
ev = Ines told speaker that she will go to Cuzco tomorrow

In other languages, such as e.g. Kashaya, and Korean, the same evidential morpheme can express both direct perception and inferences. Thus, in Kashaya (Oswalt 1986), discussed in Faller (2002), a single morpheme -gă expresses different types of information sources, reasoning-based inference that excludes visual observation (132a), and sensory observation (132b).

(132) Kashaya, cited in Faller (2002:45-46), ex. (32f) & (33)
   a. mu cohtoc'h q'h (Inferential -gă)
      ‘He must have left, he has left.’ (Said on discovering that the person is no longer present; the leaving itself was not seen [...] nor heard)
   b. cuhni mu?q ta-q'h
      ‘Bread has been cooked.’

A similar pattern is observed in Korean. Lee (2010) shows that in Korean, the evidential morpheme -te can produce both a direct and an inferential reading. Each type of evidential meaning, i.e. direct perception and inference, is associated with different tense morphemes on the predicate in the scope of the evidential, i.e. the present and the past, respectively. In the presence of the past tense morpheme -ass-, the evidential morpheme -te- has inferential evidential meaning, as in (133).
When the evidential morpheme -te- combines with the present tense morpheme -Ø-, the construction has direct evidential meaning, as in (134).

(134) Pi-ka o-Ø-te-la.  
Rain-NOM fall-PRES-TE-DECL  
‘[I saw that] it was raining.’

Similar pattern is also observed in St’át’imcets. Matthewson (2010a) shows that the evidential marker lákw7a in St’át’imcets is compatible with two different information sources: (i) direct, i.e. any type of direct perception, excluding visual (135) and (136), and (ii) indirect, specifically, inferences based on perceptual observation (137).

(135) Matthewson (2010a:5), ex. (12f)  
Context: You are blindfolded. I ask you to tell me which of three cups a stone is in. You feel around and feel the stone.  
nih lákw7a lts7a  
FOC lákw7a here  
‘It’s in this one.’

(136) Davis 2006; cited in Matthewson (2010a:5), ex. (12a)  
wa7 lákw7a ku=ts7ás=a  
be lákw7a DET=come=EXIS  
‘Someone’s coming.’
(The speaker can hear them, but not see them.)

In (135), lákw7a is used as a direct evidential. It signals that the speaker makes her statement based on sensory experience, to the exclusion of direct visual perception (136). In (137), lákw7a signals that the source of the speaker’s statement is perception of the result. The speaker observes some visual evidence – pieces of ts’wan – and makes an inference that John has eaten the ts’wan.
(137) Context: You had five pieces of ts’wan [wind-dried salmon] left when you checked yesterday. Today, you go to get some ts’wan to make soup and you notice they are all gone. You are not sure who took them, but you see some ts’wan skins in John’s room.

\[ \text{ts’áqw-an’-as} \, \text{lákwa7a } \text{i=ts’wán=a} \quad \text{k=John} \]

\[ \text{eat-DIR-3ERG} \, \text{lákwa7a DET.PL=ts’wan=EXIS DET=John} \]

‘Looks like John might have eaten the ts’wan.’

The two types of information sources expressed by lákwa7a are subsumed by direct (non-visual) and indirect (result-based inference) information sources, according to Willett’s typology. Such a combination is predicted to be impossible. Matthewson points out that the existing evidential taxonomies, including Willett’s, collapse two distinct criteria into one: “first, what means (sense(s), reasoning) the speaker uses to gain knowledge of the eventuality, and second, whether the speaker directly perceived the eventuality itself (as opposed to its results or precursors)” (Matthewson 2010a:20), and proposes that the two should be kept separate.

The cases discussed above show that it is common for evidential markers in different languages to cross-cut the evidential continuum proposed by Willett. Thus, the fact that in Bulgarian a single construction is compatible with different types of information sources cannot be taken as an argument against the status of this construction as evidential. Instead, this fact raises an important and interesting question about the typological status of the evidential system in Bulgarian. The Bulgarian evidential construction differs from e.g. St’át’imcets lákwa7a, Korean -te, or Quechua -mi- in that these languages have richer evidential morphology, while Bulgarian morphologically encodes a two-way distinction between evidential forms and unmarked indicative forms. I discuss the evidential-indicative opposition in chapter 8, and propose
how the evidential system in Bulgarian should be analyzed from a typological perspective. Meanwhile, below I list the arguments for why the Bulgarian evidential construction should be analyzed as evidential.

The first argument for classifying the evidential construction in Bulgarian as a ‘true’ evidential is semantic. Evidential sentences in Bulgarian are felicitous only if the relevant epistemic agent has a particular type of evidence, i.e. direct perception, report or evidence-based inference. The speaker cannot use the evidential construction in other contexts, i.e. if she presents information based on reasoning only. The evidential construction is infelicitous in (138), because the context does not meet the information source requirement.

(138) Context: You spent the weekend at your family’s summer house, while your sister Maria stayed in the city. Maria often plays the piano, but you have no idea what she is doing this weekend. When your grandmother calls you and asks you what Maria is doing over the weekend, you say:

Maria svirela "na piano.
‘Maria plays the piano.’

In (138), the speaker makes a claim which is not supported by any type of evidence, reportative, inferential, or direct. Maria may well be skiing with her friends or reading. Based on this observation, I characterize the type of information sources compatible with the meaning of the Bulgarina evidential as concrete: in reportative evidential contexts, the speaker has a concrete auditory report, in inferential evidential contexts, the speaker observes concrete perceivable evidence, in direct evidential contexts, the speaker has concrete perceptual evidence of the eventuality. Thus, the Bulgarian evidential can only be used felicitously if the speaker has concrete evidence for the proposition $p$ in the
Additional support for the evidential status of the Bulgarian participial construction comes from the analysis of temporal restrictions in evidential sentences, and, specifically, on the restriction that pertains to the temporal location of EAT with respect to ST. Recall that EAT is a time of evaluation, similar to the time of evaluation in constructions with propositional attitude verbs, such as believe, or reportative verbs, such as say. In principle, there are no restrictions on how the time of evaluation can be located with respect to ST. For example, the context in (139) specifies that the time of the evidence acquisition is located in the future with respect to ST. The construction with a reportative verb kazvam ‘say’ is felicitous in such a context, as (139a) shows, but the reportative evidential sentence in (139b) is infelicitous.

(139) Reportative evidential context ST < EAT: You just finished watching the World Cup final, where the Netherlands lost to Spain 0 to 1. A minute later your friend Maria who is a football afficionado and a big fan of the Netherlands team calls you on the phone. Before picking up the phone, you say to your husband:

a. Maria šte kaže če Holandija zagubi.
   Maria will say that the Netherlands lose.
   ‘Maria will say that the Netherlands lost.’

b. # Holandija zagubila / štjala da zagubi.
   Holland lose / FUT.SUBJ write.
   Intended: ‘The Netherlands lost, [I will hear].’

Intuitively, in order to make an evidential statement, the speaker must have acquired the relevant evidence first. The situation in which the speaker expects to acquire the relevant evidence in the future cannot be reported with the evidential construction, as the Bulgarian data show. Such a restriction might be due to a pragmatic constraint on the
order of information acquisition and presentation. The fact that we find such a constraint in Bulgarian presents additional support for the analyses of this construction as a true evidential.

To summarize, in this section I have shown that the Bulgarian evidential construction can express inferential, direct, and reportative information sources, but it cannot express inferences based on reasoning. These types of information sources are best characterized as *concrete*. The next section continues the discussion of the meaning of the evidential construction in Bulgarian, and focuses on the expression of epistemic commitment.

### 5.3 Epistemic modality

Even though evidentials are often defined as grammatical markers whose primary function is to encode the source of information (de Haan 1999, Aikhenvald 2004), linguistic studies have shown that in many languages evidentials also encode the speaker’s epistemic commitment, or the attitude towards the information (Chafe and Nichols 1986, Mithun 1986, Palmer 2001). This insight is also reflected in the most recent theoretical work, wherein evidentials are analyzed as having a modal component (Izvorski 1997, McCready & Ogata 2006, Matthewson et al. 2008, Lee 2010). The observation that the evidential construction in Bulgarian encodes epistemic commitment of the speaker goes back to Izvorski’s (1997) insightful paper. In her pioneering work, Izvorski observes that that the evidential statement of the form EV $p$, where $p$ refers to the proposition in the scope of the evidential, “results in the interpretation that $p$ is possible, very likely, or necessarily relative to the knowledge state of the speaker”
This observation is directly encoded in the meaning she proposes for the Bulgarian evidential in (140).

(140) The meaning of EV, from Izvorski (1997:226), ex. (8)
  a. Presupposition: Speaker has indirect evidence for p.
  b. Assertion: □ p in view of the speaker’s knowledge state.

The data in (140) support Izvorski’s analysis and show that the distribution of evidential sentences in Bulgarian is, indeed, sensitive to what the speaker believes. The evidential construction is infelicitous in an inferential context iff the speaker believes that the proposition \( p \) in the scope of the evidential is false, as (141) shows.

(141) Inferential evidential context: Yesterday you received an invitation for a party at an expensive restaurant from your friend Maria. Maria hints that she has some good news, but refuses to reveal details. You know that a couple of weeks ago Maria applied for a highly competitive position in a NASA laboratory. Originally, you thought that NASA offered Maria a job, but later you learned that it is not the case. When your friend asks you why Maria is organizing a party, you say:

#NASA her offer.PERF.PAST.PLE job
NASA offered her a job, [I inferred].

While Izvorski’s main insight about the modal properties of evidential forms in Bulgarian is essentially correct, her original analysis cannot be maintained in its original form. First, Izvorski does not discuss direct evidentiality, but any analysis of evidentiality in Bulgarian should be able to account for these interpretations, as well. As the data in (142) show, evidential sentences with direct evidential meaning are also sensitive to the status of the proposition \( p \) in the speaker’s knowledge system. Specifically, a direct evidentiality reading is infelicitous if the speaker believes that \( p \) is false (142).
(142) Direct evidential context: You are filming a scene for a commercial. In the scene you are supposed to walk in the rain. When you get ready to film the scene, the rain-making equipment splashes water, but you know that it is not actually raining. You are saying to yourself:

# To valjalo!
It rain.IMPERF.PRES.PLE
‘It is raining, [I see]’

I show in chapter 6 that the evidential construction in direct evidential contexts in Bulgarian can be given a modal analysis.

Another factor that escaped Izvorski’s attention concerns the distribution of the evidential construction in reportative evidential contexts. The truth conditions proposed by Izvorski require that the proposition expressed by an evidential sentence in reportative contexts is true at least in some of the speaker’s belief worlds. However, as the example in (142) shows, the speaker can use an evidential sentence in a reportative contexts even if she believes that the proposition $p = \text{‘Aliens offered Eli a job in a space lab’}$ is false.

(143) Reportative evidential context: You just came from a psychiatric clinic, where you visited your friend Eli. Eli was hospitalized because of severe hallucinations and other psychological problems. When your friend inquires about the things Eli told you, you say:

Izvănzemnite i predložili rabota v kosmičeska laboratorija.
Aliens her offer.PERF.PAST.PLE job in space laboratory
‘Aliens offered her a job in a space lab, [I heard].’

I discuss the differences between evidential sentences in inferential and direct evidential contexts on one hand, and in reportative evidential contexts on the other, in chapter 6, and propose a uniform semantic analysis of the evidential construction in all three types of contexts.

The observation that evidential sentences in Bulgarian are sensitive to the belief
states of the relevant epistemic agents raises the question of how epistemic modal meaning should be encoded in the meaning of the evidential. One option is to assume that the evidential operator is a propositional operator (Izvorski 1997, Matthewson et al. 2008, Lee 2010). An alternative assumption, proposed in e.g. Faller (2002) is the analysis of the evidential as an illocutionary operator. The latter does not seem to be an option for Bulgarian, because the evidential construction in Bulgarian has access to the elements at the subclausal level. Specifically, it manipulates the temporal location of ET. Therefore, I adopt Izvorski’s position in that the Bulgarian evidential should be analyzed as a propositional operator that has a modal component. In what follows, I discuss the discourse status of the information expressed by the evidential construction.

5.4 At issue and not-at-issue contribution of the evidential

Any evidential sentence in Bulgarian besides the main propositional content expresses information about the speaker’s source of information. Thus, the evidential construction in (144), expresses the proposition $p = \text{‘Maria played the piano’}$ as well as an inferential information source, based on concrete evidence.

(144) Inferential evidential context: Your niece Maria stays with you over the summer. When you come home from work, you see that the lid of the piano is open, and there are musical scores everywhere. It must be the case that in your absence Maria played the piano. When your husband calls, and asks you what Maria did during the day, you say:

Maria svirila na piano.

‘Maria played the piano, [I inferred].’

I refer to the propositional content of the evidential construction as a prejacent implication, and to the information source component as source implication. In what
follows, I show that these two implications have different discourse statuses.

The differences between the two information types for Bulgarian has been originally observed by Izvorski (1997), who argues that the proposition in the scope of the evidential is asserted, while the information about the source of the statement is presupposed, as shown in (140) repeated below as (145).

(145) From Izvorski (1997:226), ex. (8))
   a. Presupposition: Speaker has indirect evidence for p.
   b. Assertion: □ p in view of the speaker’s knowledge state

While I agree with Izvorski (1997) that the two implications of the evidential construction have different discourse statuses, I analyzed the differences differently. I argue that the prejacent implication constitutes at-issue content, while the source of information implication constitutes a not-at-issue content. If we assume with Izvorski that the source information implication is presupposed, we predict that the information about the source is in the common ground. But this is not the case. Information about the source can be new, as the example in (146) shows. In (146), the interlocutor assumes that the speaker has seen Maria playing the piano at the yesterday’s concert. In this context the evidential implication, namely, that the speaker has inferred about the event of Maria’s playing the piano is new, and thus, not presupposed.
Inferential evidential context: You are good friend with your roommate Maria, but two weeks ago you had an argument, and you haven’t spoken since then. Last night there was a school concert. You didn’t go to the concert, and you don’t know for sure what Maria did at the concert. She has spent last week practicing playing the piano, so you inferred based on this evidence that she played a piano piece at the school concert. When Ivan, who assumes that you went to the concert, asks you what Maria did at the concert, you say:

Maria svirila na piano.

‘Maria played the piano, [I inferred].’

In what follows, I show that the analysis of information status in terms of (not)-at-issueness can accurately describe the differences between the prejacent and the information source implications in the evidential construction in Bulgarian (cf. Lee 2011 on Korean).

The status of information in terms of at-issueness has been extensively discussed in Roberts et al. (2009), Simons et al. (2011). At-issue information constitutes the main point of the utterance, while not-at-issue information can be analyzed as ‘comments upon an asserted core’ (Potts 2005:57). My discussion is based on the tests for (not)-at-issueness developed in the previous literature (cf. Chierchia and McConnell-Ginet 1990, Potts 2005, Roberts et al. 2009).

The difference between at-issue and no-at-issue content is observed in a number of linguistic constructions, non-restricted relative clauses, such as (147), being one of them (cf. Chierchia and McConnell-Ginet 1990, Potts 2005).

(147) Mary, a Chicagoan, dislikes New York.
    a. Main clause implication (at-issue): Mary dislikes New York
    b. Relative clause implication (not-at-issue): Mary is a Chicagoan.

In (147), the information expressed by the main clause, i.e. the proposition $p = ‘Mary dislikes New York’$ is at issue, while the information expressed by the relative clause, i.e.
the proposition \( p = \text{‘Mary is from Chicago’} \) is not-at-issue. This analysis is based on the fact that the two implications behave differently with respect to a number of tests. As Amaral et al. (2007) and Simons et al. (2010) show, the implications that are at-issue, can address the question under discussion (QUD) (Roberts 1996), while implications that are not-at-issue, cannot. In (148), QUD is Mary’s attitude towards New York. Only the matrix clause can address this question (80a). If the information that addresses QUD, i.e. the proposition \( p = \text{‘Mary dislikes New York’} \), is expressed by the relative clause, as in (148b), the sentence is infelicitous.

(148) Does Mary like New York?
   a. Mary, who is a Chicagoan, dislikes New York.
   b. #Mary, who dislikes New York, is a Chicagoan.

Another test that differentiates between at-issue and no-at-issue content is challengeability (Faller 2002, Matthewson et al. 2008, Roberts et al. 2009, Murray 2010). This test shows that at-issue content can be directly challenged, agreed or disagreed with by discourse participants, while not-at-issue content cannot be addressed. The data in (149) show the contrast between at-issue and not-at-issue implications for relative clauses.

(149) Mary, who is a Chicagoan, dislikes New York.
   a. Yes, this is true. She hates New York. /No, this is not true. Mary likes New York.
   b. #Yes, she is from Chicago. /No, she is from Columbus.

(149a) shows that the speaker can agree or disagree with the implication expressed by the main clause, i.e. the proposition \( p = \text{‘Mary dislikes Chicago’} \). However, the speaker cannot agree or disagree with the implication expressed by the relative clause, i.e. the proposition \( p = \text{‘Mary is a Chicagoan’} \), as (149b) shows. The speaker can challenge not-
at-issue information by using expressions such as \textit{Waite a minute!} (von Fintel 2004), as (150) shows:

(150) Mary, who is a Chicagoan, dislikes New York. 
   \textit{Wait a minute! Mary is from Columbus!}

In what follows, I apply the tests for (not)-at-issueness to the Bulgarian evidential and show that the prejacent and the information source implications have different discourse status. The data in (151) and (152) show that information expressed by the prejacent (i) addresses QUD, and (ii) passes the challengeability test, respectively. In (151), QUD is Maria's activity, and the proposition $p$ expressed by the clause in the scope of the evidential addresses this question.

(151) Inferential evidential context: Your niece Maria stays with you over the summer. She often plays the piano in a practice room. When you come home from work, you hear music from Maria’s practice room. It must be the case that she is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say:
   Maria svirela na piano.
   ‘Maria is playing the piano [I inferred].’

In (152), the first speaker asserts the proposition $p = ‘Maria is playing the piano’ by using the evidential construction (152a), and the second speaker challenges this information by asserting that Maria’s friend is playing the piano (152b).

(152) Inferential evidential context: Your niece Maria stays with you over the summer. She often plays the piano in a practice room. When you come home from work, you hear music from Maria’s practice room. You infer that Maria is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say (a). Your son, who enters the room, says (b).
   a. Maria svirela na piano.
      Maria play.IMPERF.PRES.PLE on piano
      ‘Maria is playing the piano [I inferred].’

   b. Maria svirela na piano.
      Maria play.IMPERF.PRES.PLE on piano
      ‘Maria is playing the piano [I inferred].’
I conclude, based on the data in (151) and (152) that the prejacent implication in the evidential construction is at-issue.

The data in (153) and (154) show that the evidential implication cannot address QUD, and fails the challengeability test. In (153), QUD is the speaker’s source of information, and the evidential construction is infelicitous in such a context.

(153) Inferential evidential context: There was a robbery in your house. The police asks you what kind of evidence you have that your roommate Maria played the piano at the time of the robbery. You say:

\# Maria svirila na piano.
Maria play.IMPERF.PAST.PLE on piano
‘Maria played the piano [I inferred].’

In (154), the speaker uses the evidential construction to indicate that her source of information is inference (154a). The second speaker cannot challenge the information source implication directly, as (154b) shows.

(154) Inferential evidential context: Your niece Maria stays with you over the summer. She often plays the piano in a practice room. When you come home from work, you hear music from Maria’s practice room. You infer that Maria is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say (a). Your son, who enters the room, thought that you saw Maria’s piano, and says (b).

a. Maria svirela na piano.
Maria play.IMPERF.PRES.PLE on piano
‘Maria is playing the piano [I inferred].’

b. \# Ne e vjarno.
NOT be.3SG.PRES true.
Ti ja vidja da sviri.
You her see.IMPERF.3SG.PAST SUBJ play.IMPERF.3SG.PRES
‘Not true. You saw her playing.’

To summarize, the discussion in this section has shown that information expressed by the
evidential construction in Bulgarian has different discourse status. The prejacent implication is at-issue, while the information source implication is not-at-issue.

5.5 Summary and an outlook

In this chapter, I discussed the meaning components of the evidential construction, and the discourse status of information in terms of (not)-at-issue content. In terms of its meaning contribution, the evidential construction conveys three types of information (ii) temporality, (ii) source of information, and (iii) the strength of epistemic commitment.

Temporal relations are encoded in the meaning of tense and aspect in evidential constructions. Unlike tenses in the indicative paradigm, temporal relations in evidential sentences are specified not with respect to ST (via RT) but with respect to the time at which the speaker acquires the relevant evidence for the information she reports. Despite the fact that tense and aspect of the participle make semantic contributions to the meaning of the evidential sentence, their contribution alone is not enough to explain how events are located in time with respect to ST. This motivates the assumption that the missing temporal relations are encoded in the meaning of the evidential operator. I develop the analysis of the temporal component of the evidential operator in chapter 6.

In terms of information sources, evidential sentences in Bulgarian occurs in direct, inferential and reportative evidential contexts, and can be used felicitously only if the speaker has concrete evidence for the proposition \( p \) in the scope of the evidential. Evidential sentences cannot be used in the absence of any observable or audible evidence.

With respect to epistemic commitment, evidential sentences in Bulgarian are
sensitive to the knowledge state of the speakers, which suggest that similarly to modals, they encode the strength of epistemic commitment. I argue that this information is encoded in the meaning of the evidential operator, which is analyzed as having a modal component in chapter 6.

The discussion in this section also showed that information expressed by the evidential construction has different discourse status. The proposition in the scope of the evidential expresses at-issue content, while the source of information is not-at-issue.

These empirical generalizations prepare the grounds for the analysis of the evidential operator presented in the next chapter.
CHAPTER 6: THE ANALYSIS:
THE MEANING OF THE BULGARIAN EVIDENTIAL

Some information encoded in the meaning of the evidential construction is contributed by the evidential operator. In this chapter, I discuss the meaning of the evidential operator in Bulgarian, and present a compositional semantic analysis of the evidential construction in Bulgarian. I show that the evidential operator encodes two pieces of information: (i) the existence of the evidence acquisition time, and the temporal relation between EAT and ST (section 6.1) and (ii) the strength of epistemic commitment of the relevant epistemic agent, (section 6.2). Section 6.3 spells out the compositional semantic analysis. Section 6.4 summarizes the analysis.

6.1 The temporal component

The discussion in section 5.1 has shown that grammatical aspect of the participial and temporal properties of participial stems temporally locate the eventuality under discussion with respect to the evidence acquisition time parameter. Consider how the temporal relations are derived for the sentence in (155).

(155) Context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, is now writing a book. At the class reunion later that week when someone asks you what Maria does, you say:
Maria пишеш книга.
Maria write.IMPERF.PRES.PLE book
‘Maria is writing a book, [I heard].’

The joint contribution of imperfective aspect and the present tense stem establishes that
at the time at which the speaker acquires the relevant evidence, the eventuality of
Maria’s writing a book is ongoing, i.e. $EAT \subseteq ET$, as shown in (156).

(156) Temporal relations in (155):
   a. Imperfective aspect: $RT \subseteq ET$.
   b. Present tense stem: $RT = EAT$.
   c. Temporal location of $ET$ with respect to $EAT$ (from (a) and (b)): $EAT \subseteq ET$

The temporal relations contributed by tense and aspect in (155) do not say anything
about how the eventuality under discussion is located with respect to ST. Nevertheless,
speakers understand what the relation between $ET$ and $ST$ is in evidential sentences. The
temporal relation between $ET$ and $ST$ can be derived if we know how $EAT$ is related to
$ST$. In this section, I follow Lee (2010), and argue that the evidential operator encodes
the relation between $EAT$ and $ST$. When the information about the temporal location of
$EAT$ with respect to $ST$ is added to the known temporal relations contributed by tense
and aspect, the speakers infer how $ET$ is located with respect to $ST$, as shown in (157).

(157) $ET \rightarrow RT$ (aspect); $RT \rightarrow EAT$ (tense); $EAT \rightarrow ST$ (evidential)

The rest of this section is structured as follows. In section 6.1.1, I discuss what temporal
relations can hold between $EAT$ and $ST$. Section 6.1.2 shows that each temporal
configuration correlates with unique set of prosodic and pragmatic factors. Sections 6.1.3
and 6.1.4 investigate the effect of the illocutionary force operator and the present perfect
morphology on the nature of temporal relations between $EAT$ and $ST$.

6.1.1 Temporal relations between $EAT$ and $ST$

A priori, there are three possibilities of how $EAT$ can be temporally located with respect
to $ST$. The time of evidence acquisition can precede or follow $ST$, or it can coincide with
The latter configuration, which I refer to as an overlapping relation, means that the speaker makes a statement at the same moment as she acquires the relevant information through direct observation, report, or inference. Examples of such a temporal configuration are given in (158) – (160). In (158), the speaker hears the news, and reacts by using the evidential construction. In (159), the speaker articulates the inference the same moment she makes it. Similarly, in a direct evidential context in (160), the speaker’s statement about the event coincides with her perception.

(158) Reportative evidential context: You accidentally run into your former classmate Ivan. Ivan tells you that Maria, an old friend of yours, with whom you lost contacts ten years ago, has a successful academic career. In fact, right now she is busy writing a book. Upon hearing this news, you say:
Maria pišela kniga!
‘Maria is writing a book, [I hear]’

(159) Inferential evidential context: Your roommate Maria spends a lot of time working on her laptop. She never tells you what she does. Today, while cleaning her room, you discover her calendar, in which large chunks of time are devoted to writing a book. Upon the discovery, you say:
Maria pišela kniga!
‘Maria is writing a book, [I infer]’

(160) Direct evidential context: Your new roommate Maria never discusses details of her work with you. Today, while cleaning the house, you discover an unfinished manuscript of her book, and a contract with a publisher. Upon the discovery, you say:
Maria pišela kniga!
‘Maria is writing a book, [I see]’

In the case of the precedence relation between EAT and ST, there is a temporal gap between the moment at which the speaker acquires the relevant evidence and the time she reports it in a conversation. These constructions are presented in (161) and (162)
below.

(161) Reportative evidential context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, is now writing a book. A couple of days later, at the class reunion, when someone asks you what Maria does, you say:
Maria пиšела книга.
‘Maria is writing a book, [I heard].’

(162) Inferential evidential context: Your new roommate Maria spends all her time writing, but she never talks about her work. Yesterday, while cleaning the house you found instructions on how to write a book on Maria’s desk. Later today, when one of your friends asks you what Maria does, you say:
Maria пиšела книга.
‘Maria is writing a book, [I inferred].’

The future temporal relation between EAT and ST would signal that in the future the speaker will have evidence for $p$. Such a temporal relation is not possible in Bulgarian. Neither the present stem participial, nor the future evidential construction in (163) can mean that the speaker will acquire the relevant evidence in the future.

(163) Reportative evidential context: You suspect that your former school friend Maria is writing a book, but you have no evidence. Next week you have a meeting with Maria’s sister, a good friend of yours. You plan to ask her whether Maria is writing a book. When someone asks you what Maria does, you say:
#Maria пиšела / štjala да пише книга.
Maria write.IMEPR.PRES.PLE book
Intended: ‘Maria is writing a book, [I will hear].’

I argue that the future temporal configuration between ST and EAT, namely (ST < EAT) is ruled out on pragmatic grounds. In order to use the evidential sentence, the speaker must acquire the relevant evidence first. The speaker cannot use an evidential construction before she acquired the relevant evidence.
6.1.2 Correlation between pragmatic, prosodic, and temporal factors

A cross-linguistic comparison shows that in some languages the relation between EAT and ST is morphologically marked. In Korean, for example, the evidential morpheme -te locates EAT in the past with respect to ST, and the evidential morpheme -ney signals that EAT overlaps with ST (Lee 2010, 2011, p.c.). Thus, in (164a), -te signals that the speaker observed the event of Mina’s eating at some past time, while in (164b), -ney specifies that the visual observation of the eating event happens at ST (cf. the tense of the verb see in the translation.

(164) Korean, from Chung (2005: 144), ex. (36)
   a. mina-ka pap-ul mek-te-la
      Mina-NOM meal-ACC eat-TE-DECL
      ‘[I saw] Mina was eating.’
   b. mina-ka pap-ul mek-ney
      Mina-NOM meal-ACC eat-NEY
      ‘[I see] Mina is eating.’

A comparison of Bulgarian sentences with past and overlapping relations between EAT and ST shows that such constructions have identical morphology (cf. (158) vis-a-vis (161) and (159) vis-a-vis (162)). Thus, unlike Korean, the temporal relation between EAT and ST is not morphologically manifested in Bulgarian. Crucially, however, in Bulgarian, sentences with the two different temporal relations between EAT and ST are pronounced with different intonation. If the speaker acquires the relevant information prior to ST, the intonation contour of the declarative sentence is used. Impressionistically, the intonation contour of a declarative sentence in Bulgarian is H* followed by L% boundary tone. When EAT overlaps with ST, the construction has
exclamatory intonation, marked as ‘!’\(^{28}\)

In traditional literature, evidential sentences with exclamative intonation are analyzed as encoding surprise on the part of the speaker at the discovery of new information and are often discussed under the rubrics of “mirativity” (e.g., Weigand 1924, Andrejčin 1944, Maslov 1956, Aronson 1967, Darden 1977, Friedman 1980, 1982, Aleksova 2001 on Bulgarian). I have argued in section 5.2 that there is no motivation to subsume (direct) evidential sentences under the category mirative. The question remains, however, of how to derive the surprise component for evidential sentences that are pronounced with exclamative intonation, such as (158) – (160).\(^{29}\) Thus, evidential sentences that are pronounced with the exclamatory intonational contour do express surprise, while evidential sentences that have plain intonation are descriptively analyzed as lacking the surprise component. The fact that different types of intonation contour correlate with different pragmatic functions is hardly surprising, especially when evaluated against the body of literature on intonational meaning (e.g., Ladd 1980, Pierrehumbert and Hirschberg 1990, Hirschberg and Ward 1995). However, what went unnoticed in the previous literature on evidentiality in Bulgarian is the fact that in Bulgarian evidential sentences, intonation and pragmatic effect also correlate with temporal relations, as Table 7 shows.

\(^{28}\) An impressionistic analysis shows that the exclamative intonation contour in Bulgarian evidential sentences is similar to that of English exclamatives such as in e.g., *Maria is writing a book!*.

\(^{29}\) From the perspective of the temporal ontology adopted here, evidential sentences with exclamative intonation do not belong to an independent category “mirative” (contra DeLancey 1997, 2001), but are simply members of the evidential paradigm that encode a particular temporal relation between EAT and ST, that of an overlap. The exclamatory intonation, a hallmark of the “mirative”, is simply an expression of surprise upon the discovery of *new* information. I argue below that the surprise component is encoded in the meaning of the exclamative illocutionary force operator.
<table>
<thead>
<tr>
<th>Temporal relation</th>
<th>Intonation</th>
<th>Pragmatic effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAT=ST</td>
<td>Exclamatory</td>
<td>Surprise</td>
</tr>
<tr>
<td>EAT&lt;ST</td>
<td>Declarative</td>
<td>No surprise</td>
</tr>
</tbody>
</table>

TABLE 7: Correlation between temporal relations, prosody, and pragmatics

The empirical generalizations summarized in Table 7 raise the question about the mechanisms that guarantee the observed correlation between temporal relations and intonational contour.

6.1.3 The role of the illocutionary force operator

From the perspective of speech act theory (Austin 1962, Searle 1965), sentences with declarative and exclamative intonation differ with respect to their illocutionary force, the former being assertions, and the latter exclamatives. One of the characteristics of exclamatives that distinguishes them from assertions and other non-exclamatives is that they cannot appear as answers to questions (Zanuttini and Portner 2003:48). The Bulgarian evidential with exclamative intonation demonstrates the same behavior, as (165) shows (cf. (165a) and (165b)).

(165) Context: Your niece Maria stays with you over the summer. She usually reads books, swims, and occasionally plays the piano. When you come home from work, you see that the lid of the piano is open. It must be the case that Maria played the piano earlier today. Later, your husband calls you from work and asks you what Maria did today:

Husband: Kakvo pravi Maria?
what do.IMPERF.3SG.PAST Maria
‘What did Maria do?’

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The declarative evidential construction (165a) is felicitous as an answer to the question in (165) because it advances the conversation forward by introducing a new piece of information, i.e. by asserting that Maria played the piano. In such a case, similar to what Rett (2009) observes about regular assertions in English, “the speaker can be thought of as believing the content and wanting to communicate the truth of the content” (Rett 2009:602). Exclamative evidential sentences, such as (165b), have a remarkably different discourse function. From a functional perspective, evidential sentences with exclamative intonation simply signal that the speaker is surprised at the discovery that $p$ but they do not necessarily assert $p$. Thus, in the reportative context in (158), the speaker repeats the information that she has just heard. Similarly, in the direct evidential context in (160), the makes a statement about her visual observation. Evidential sentences with exclamative intonation can also be uttered if the speaker is currently not engaged in any conversation. Thus in (159), the speaker is alone in her room, and expresses her astonishment at the information she has just discovered. Evidential sentences with exclamative intonation meet the description of exclamatives as proposed by Rett (2009), according to which “the illocutionary force of exclamation is one in which the speaker believes the content and wants to communicate that the content is surprising” (Rett 2009:602). I assume that the observed differences between evidential sentences with plain declarative
intonation and those with exclamative intonation should be encoded in the meaning of illocutionary force operators. It is the conditions imposed by the illocutionary force operators that regulate the correlations in Table 7, and are responsible for the assignment of the right intonational contour to constructions with the corresponding temporal relations in evidential sentences, as I show below.

Following Rett (2009), I assume that the illocutionary force operator for exclamative sentences (E-Force) guarantees that a sentence is “expressively correct” (Rett 2009:609) in a given context if the two conditions specified in (166) are met:

\[ \text{EVIDENTIAL E-FORCE}(p) \text{ is expressively correct in context } C \text{ iff } p \text{ is salient in } C \text{ and the speaker in } C \text{ is surprised that } p \text{ at the time of the utterance (adapted with slight modifications from Rett 2009:609).} \]

Evidential sentences with the overlapping relation between EAT and ST meet both conditions specified in (160), and thus are pronounced with an exclamative intonational contour. First, in all examples with the overlapping relation between EAT and ST, information expressed by the evidential is salient. Thus, in the reportative context in (158), the speaker repeats what she has just heard. In the inferential context in (159), the speaker simply voices her current thoughts. In the direct evidential context in (160), the speaker comments on her on-going perceptual experience. Second, all these sentences express information which is new to the speaker – this is due to the very fact that EAT coincides with ST – and the novelty triggers surprise at the discovery of the relevant evidence. The surprise component is contingent upon the novelty of information (cf. Aleksova 2001, DeLancey 2001), and only a temporal configuration in which EAT overlaps with ST

\[ 30 \text{ Rett (2009) does not discuss evidentials but proposes the conditions in (166) for proposition exclamatives such as } \textit{Sue wore orange shoes!} \]
guarantees that information is new.\(^\text{31}\) If EAT precedes ST, there is a temporal gap between the time at which the speaker acquires the relevant evidence and the moment at which she reports it, which allows the speaker to process the acquired information. Thus, by the time she reports it in a conversation, information is no longer new, and, therefore, not surprising to the speaker.\(^\text{32}\) Sentences with such a temporal configuration would fail to satisfy the surprise requirement imposed by the illocutionary E-force operator, and would be realized with a plain intonational contour of a declarative sentence, assigned by e.g. an assertive illocutionary force operator (cf. Vanderveken 1990).

This discussion shows that pragmatic conditions imposed by the illocutionary force operator regulate the correlation between temporal relations and intonation in evidential sentences. Thus, which temporal relation, an overlap or a precedence, is chosen in each case is contextually determined in Bulgarian.

### 6.1.4 Interim summary: Temporal contribution of the evidential operator

The discussion in this section has established which grammatical and contextual components are responsible for specifying relations between times in evidential sentences. The grammatical aspect and temporal properties of the stem jointly determine the temporal location of the eventuality with respect to the time of evidence acquisition.

\(^{31}\) If a speaker of Bulgarian learns something that she expected to learn, she would not spontaneously use an evidential sentence at the moment of evidence acquisition, as in (158) – (160). Thus, even though novelty is not necessarily related to surprise – it is easy to imagine a context in which the speaker receives a new but expected piece of information, and is not surprised – in the Bulgarian evidential sentences the novelty does imply surprise.

\(^{32}\) Sometimes speakers use exclamative intonation to report information that is not new to them but new to the interlocutor (Rett 2009). In such cases exclamative intonation does not express genuine surprise on the part of the speaker, but is used to achieve dramatic effect. Such cases, however, do not undermine the argument presented here.
The present perfect morphology specifies that EAT is non-future with respect to ST. Whether EAT coincides with ST or precedes ST is contextually determined, and is regulated by the exclamative and the assertive illocutionary force operators. Thus, while there is no single grammatical component that specifies how the eventuality is located with respect to ST, such a temporal relation is entailed when the contribution of aspect and the temporal meaning of the participial stem are considered together. To demonstrate how the analysis works, I discuss temporal relations in (167).

(167) Context: Your classmate Ivan tells you that Maria, an old friend of yours, is now writing a book. You know that Maria always hated writing when she was a student, so you are surprised to hear that she is writing a book. Upon hearing the news, you say:

Maria pišela kniga!
Maria write.IMPERF.PRES.PLE book
‘Maria is writing a book, [I hear]!’

The sentence in (167) means that the event of Maria’s writing a book is ongoing both at EAT and at ST. The overlap between ET and ST is derived as follows. The imperfective aspect specifies that RT is a subset of ET (RT ⊆ ET), and the present stem participle encodes that RT and EAT coincide (RT = EAT). From these two relations it follows that EAT is a subset of ET (EAT ⊆ ET). The temporal constrain on the location of EAT with respect to ST specifies that EAT either precedes or coincides with ST (EAT ≤ ST). The context in (167) specifies that the speaker is surprised at the time of the utterance, which triggers the application of the exclamatory E-force operator, and gives raise to the exclamatory intonation. Only the condition in which EAT and ST coincide (EAT = ST) is compatible with the meaning of the illocutionary operator E-force, as in (166). From the two relations, (EAT ⊆ ET) and (EAT = ST), it follows that ST is a subset of ET (ST ⊆ ET).
ET), i.e. the eventuality of book writing is ongoing at ST.

Note, however, that the sentence in (167) is felicitous in contexts in which Maria is not writing a book in the actual world. It might be the case that Ivan is misled into thinking that Maria is writing a book. Such scenarios necessitate a closer look at the semantics of evidential sentences. In the next section, I argue that the analysis developed so far should also be enriched with the modal component.

6.2 The modal component

Various studies have shown that in many languages evidentials also encode the speaker’s epistemic commitment, or the attitude towards the information, such as probabilistic judgments, assessments, etc. (Chafe and Nichols 1986; Mithun 1986; Palmer 2001; Faller 2002; McCready & Ogata 2006). This intuition is explicitly spelled out in Izvorski (1997), who proposes that the Bulgarian evidential construction should be analyzed as having an epistemic modal component, and similar to epistemic modals, such as must. In what follows, I present evidence for a modal analysis, by subjecting the Bulgarian to tests developed in Faller (2002), and Matthewson et al. (2008). While the data presented below support the idea that the Bulgarian evidential has a modal component, they also necessitate revisions of Izvorski’s original proposal. Specifically, I argue that the Bulgarian evidential is an intensional operator that functions similarly to propositional attitude verbs, such as believe, and modal verbs, such as must, in that it (i) encodes quantification over possible worlds (universal modal force), and (ii) the proposition in the scope of the evidential is evaluated with respect to a contextually determined modal base. My proposal is different from Izvorski’s analysis in that I assume that the
Bulgarian evidential, similarly to modals, is compatible with different modal bases, depending on the context in which it occurs. In direct and inferential evidential contexts, the proposition in the scope of the evidential is evaluated with respect to the speaker’s belief worlds. In reportative evidential sentences, the embedded proposition is evaluated with respect to the belief worlds of the original reporter. Such an analysis treats reportative evidential sentences essentially as reports de dicto, which resolves the problem with false reports, as in (143), repeated below as (168), while still allowing for a uniform semantic analysis of the evidential construction.

(168) Reportative evidential context: You just came from a psychiatric clinic, where you visited your friend Eli. Eli was hospitalized because of severe hallucinations and other psychological problems. When your friend inquires about the things Eli told you, you say:

Izvânzemnite i predložili rabota v kosmičeska laboratorija. 
Aliens her offer.PERF.PAST.PLE job in space laboratory
‘Aliens offered her a job in a space lab.’

The rest of this section has the following structure. In section 6.2.1, I discuss the epistemic component in inferential and direct evidential contexts. Section 6.2.2 focuses on the epistemic component in reportative evidential contexts. The discussion motivates a modal analysis of the Bulgarian evidential operator, which is spelled out in section 6.3.

6.2.1 Epistemic commitment in inferential and direct evidential contexts

The (in)felicity in the contexts when the proposition expressed by the construction is known to be true or false to the speaker has been used as a modal diagnosis (Faller 2002, Matthewson et al. 2008). This diagnosis is based on the assumption that if the two grammatical elements have a modal component, they would show the same distributional pattern if the relevant conditions – the speaker’s knowledge state in the
case of modal and evidential constructions – are controlled for.

Sentences with modal verbs, such as *It must be raining*, are infelicitous in the context when the speaker knows that it is raining. Such a modalized assertion is much weaker than a plain assertive statement such as *It is raining* (Karttunen 1972, Groenendijk and Stokhof 1975, Kratzer 1991, Giannakidou 1999, Werner 2006, but see von Fintel and Gillies 2009 for the opposite view). The usage of a modalized sentence in the context where the plain assertion can be used violates the maxim of quantity. By this logic, if the evidential construction is infelicitous in the contexts when the speaker knows $p$ to be true, it must have a modal component. An example of such methodology at work is the analysis of St’át’imcets presented in Matthewson et al. (2008). The examples in (169) below show that in St’át’imcets the speaker can use neither an inferential ($k’a$) nor a direct evidential ($an’$) if she knows that the proposition she reports – the kissing event – happened for a fact.

(169) a. Inferential evidential in St’át’imcets,
from Matthewson et al. (2008:216), ex. (31)
# ts’um’-qs-án’-as k’a kw s-Lémya7 kw s-Roger;
lick-nose-DIR-3ERG INFER DET NOM-Lémya7 DET NOM-Roger
ats’x-en-lhkán wi7 zam’
see-DIR-1SG.SUBJ EMPH after.all
‘Lémya7 must have kissed Roger; actually I saw it.’

b. Direct evidential in St’át’imcets, from Matthewson et al. (2008:216), ex. (33)
# ts’um’-qs-án’-as-an’ kw s-Lémya7 kw s-Roger;
lick-nose-DIR-3ERG-PERC.EVID DET NOM-Lémya7 DET NOM-Roger
ats’x-en-lhkán wi7 zam’
see-DIR-1SG.SUBJ EMPH after.all
‘Lémya7 apparently kissed Roger; actually I saw it.’

Based on the data like (169), the authors argue for a modal analysis of evidentials in
St’át’imcets.

The assessment of the Bulgarian data shows that the Bulgarian evidential in inferential and direct contexts is infelicitous if the truth of the proposition is known to the speaker. Thus, in (170), the speaker originally made an inference that \( p \), where \( p = \) ‘Maria is writing a book’, but later received additional information, which led her to the knowledge that \( p \) is true. The evidential construction cannot be used felicitously in such a context:

(170) Inferential evidential context: While cleaning the house, you discovered instructions on how to write a book on Maria’s desk. It must be the case that Maria is writing a book. Later Maria confirmed that she is working on a manuscript of a book, and asked you to comment on the first chapter. When one of your friends asks you what Maria does, you say:

\[
\begin{align*}
# & \text{ Maria pišela } \text{ kniga.} \\
& \text{ Maria write.IMPERF.PRES.PLE book.} \\
& \text{ Vsăšnost, az pročetoh } \text{ čast ot neja.} \\
& \text{ In.fact I read.PERF.3SG.PAST part of it} \\
& \text{ ‘Maria is writing a book, [I inferred]. In fact, I read a part of it.’}
\end{align*}
\]

Similarly, if the speaker knows that \( p \) is true, she cannot use the evidential to report direct perception of the event:

(171) Direct evidential context: You just finished reading the first chapter of your roommate Maria’s book. Upon cleaning the house, you discovered the manuscript of the second chapter of the book in her office. Upon the discovery, you say:

\[
\begin{align*}
# & \text{ Maria pišela } \text{ kniga!} \\
& \text{ Maria write.IMPERF.PRES.PLE book.} \\
& \text{ Vsăšnost, az pročetoh } \text{ čast ot neja.} \\
& \text{ In.fact I read.PERF.3SG.PAST part of it} \\
& \text{ ‘Maria is writing a book, [I see]! In fact, I read part of it.’}
\end{align*}
\]

These data show that in inferential and in direct evidential contexts, the Bulgarian evidential behaves like evidential constructions in St’át’imcets, and satisfies the proposed criteria for a modal component.
Another test used to probe for the modal component in evidential sentences is the (in)felicity if the proposition is known to be false to the speaker (Faller 2002; Matthewson et al. 2008). As discussed in Faller (2002), the speaker cannot assert the possibility of raining if she knows that it is not raining.

(172) Faller (2002:193), ex. (156b)
# It must be raining, but it is not raining.

If an evidential construction is infelicitous in such a context, then, according to the proposed diagnosis, it has a modal component (cf. (173) from St’át’imcets).

(173) a. Inferential evidential in St’át’imcets, from Matthewson et al. (2008:213), ex. (25)
# wa7 k’a kwis, t’u7 aoz t’u7 k-wa-s kwis
IMPF INFER rain but NEG just DET-IMPF-3POSS rain
‘It may/must be raining, but it’s not raining.’

b. Direct evidential in St’át’imcets, from Matthewson et al. (2008:213), ex. (26)
# wá7-as-an’ kwis, t’u7 aoz t’u7 k-wa-s kwis
IMPF-3CONJ-PERC.EVID rain but NEG just DET-IMPF-3POSS rain
‘It’s apparently raining, but it’s not raining.’

The Bulgarian data show the same pattern. The speaker cannot use an evidential sentence if, for example, she first inferred that Maria is writing a book, as the context in (174) specifies, but later learned that it is not the case.

(174) Inferential evidential context: While cleaning the house, you discovered instructions on how to write a book on Maria’s desk. It must be the case that Maria is writing a book. Two days later, you learned that it is Maria’s partner and not Maria who is writing a book. When one of your friends asks you what Maria does, you say:
# Maria pišela kniga. Vsǎštnost, tova ne e taka.
Maria write.IMPERF.PRES.PLE book. In.fact it NOT be.3SG.PRES true
‘Maria is writing a book, [I inferred]. In fact, it is not true.’

Similarly, if the speaker knows that it is not the case that $p = \text{‘Maria is writing a book’}$,
she cannot report perceptual evidence for \( p \), using the evidential construction:\(^{33}\)

(175) Direct evidential context: Your roommate Maria is a successful businesswoman. She made a commitment to write a book, but because she has no time, Maria’s sister is ghostwriting the book for her. While cleaning the house, you see a printout of the first chapter of Maria’s book. Upon the discovery, you say to yourself:

\[
\text{Maria pišela kniga! Vsāšnost, tova ne e taka.}\quad \text{Maria write.IMPERF.PRES.PLE book. In fact it NOT be.3SG.PRES true}
\]

‘Maria is writing a book, [I see]! In fact, it is not true.’

The distribution of the evidential construction in direct and inferential contexts and, specifically, the infelicity when the proposition in the scope of the evidential is known to be true/false to the speaker, suggests that the Bulgarian evidential has a modal component.

I assume that the evidential is similar to modals in that (i) the proposition in the scope of the evidential is evaluated with respect to contextually provided set of worlds, i.e. modal base, and (ii) it encodes quantificational force (cf. the analysis of modals in Kratzer 1991). In inferential and direct evidential contexts, the relevant sets of worlds are belief worlds of the speaker (the doxastic modal base relativized to the speaker). All worlds in the doxastic modal base are compatible with what the speaker believes at the time of evaluation. As the earlier discussion has shown, the actual world may not be a member of that set, because facts might be different from what the speaker believes is the case. In this respect, the evidential construction also parallels the behavior of the propositional attitude verb believe. When the speaker uses the evidential in inferential

\(^{33}\) In all examples involving direct evidential contexts, EAT overlaps with ST. The precedence relation \((\text{EAT} < \text{ST})\) is not compatible with direct evidential contexts in Bulgarian. This is due to the fact that direct perception provides highly reliable evidence and, in cases when there is a gap between EAT and ST, leads speakers to believe that the observed event occurred for a fact. Factual information, however, cannot be expressed by the evidential (see chapter 8).
contexts, she believes that the proposition is true, without having factual knowledge of it. As observed by Izvorski, “inferences trigger the interpretation that the speaker comes to believe $p$, but on the basis of evidence insufficient to justify knowledge” (Izvorski 1997:225).

The same observation can be extended to the usage of the evidential in contexts when the speaker has direct perceptual evidence for $p$. The data presented in (175) show that the evidential construction in Bulgarian cannot be used in a direct evidential context, if the proposition expressed by the sentence is known to be true by the speaker. This observation suggests that similarly to inferential evidential sentences, direct evidential sentences should be analyzed as having a modal component. On the first sight, this empirical generalization is at odds with the naïve intuition that direct perception of an event implies knowledge of the event. This naïve intuition is tacitly based on two assumptions. First, there is an assumption that what we experience during direct perception are physical objects in the real world, and second, the perception is sufficient to justify knowledge of $p$. Both of these assumptions have been extensively discussed in the philosophical literature that deals with perception (BonJour 2009). The assumption that the object of perception are physical entities in the world, known as “naïve relativism” has been widely rejected (BonJour 2009). Similarly, the assumption that direct perception implies knowledge has also been challenged in the philosophical literature (cf. Bruckner 2008; Fantl and McGrath 2009 on when direct perception amount to knowledge and on literature overview). As Ginet (1975:117) has pointed out, “it is possible for a perceptual fact to be unknown to its subject at the time it occurs”. The

---

34 Perception verbs have long been analyzed as intensional operators (cf. Hintikka 1969b).
position that direct evidentials in Bulgarian do not imply knowledge at the moment of perception is further supported by the fact that direct evidentials always co-occur with exclamatory intonation, and have a mirative flavor. According to DeLancey, the proposition expressed by the mirative sentence is “one which is new to the speaker, not yet integrated into his overall picture of the world” (DeLancey 1997:36). This characterization suggests that when the speakers of Bulgarian use direct evidential sentence with the exclamatory intonation, they do not yet know that what they observe is true and real. In linguistic literature, this intuition was captured by the observation that direct evidentials are associated with “some state of ignorance or disbelief during which the speaker would not have vouched for the truth of the statement” (Friedman 1981:25). Based on this discussion, I conclude that similarly to inferential evidentia sentences, in direct evidential sentences, the proposition in the scope of the evidential is interpreted with respect to the epistemic modal base of the speaker.

With respect to quantificational force, evidential sentences parallel the behavior of the necessity modal must (Kratzer 1991) and the propositional attitude verb believe (e.g. Hintikka 1969a), both of which involve universal quantification over worlds. The Bulgarian evidential is incompatible with a weaker commitment, paraphrasable with a possibility modal might. Unlike an assertion with a necessity modal, a sentence with a possibility modal allows for an alternative assessment of a situation, so that the statement of the form “it might be the case that p and it might be the case that not p” are acceptable in Bulgarian (176).
It is possible that Maria is writing a book and it is possible that she is not writing a book.

However, the evidential statements of the form Ev $p$ and Ev $\neg p$ are infelicitous in Bulgarian, as (177) shows.

Intended: ‘It is possible that Maria is writing a book and it is possible that she is not writing a book.’

These data suggest that the evidential construction in Bulgarian encodes universal and not existential quantificational force. In light of this discussion, I propose the following definition of the meaning of the evidential in inferential and direct contexts:

(178) The meaning of the Bulgarian evidential (to be modified):

For any model $M$, assignment function $g$, time $t$, worlds $w, w'$

$$\llbracket \text{EVID } p \rrbracket^{M, g, t, w} (w) (t) \text{ is defined iff the speaker has concrete evidence for } p,$$

where concrete subsumes reports from someone else, evidence-based inferences and direct perception of the eventuality denoted by $p$.

If defined, $\llbracket \text{EVID } p \rrbracket^{M, g, t, w} (w) (t) = 1$ iff there exists a time $t''$, located either before or at the evaluation time $t$, at which the speaker acquires the concrete evidence for $p$, such that in all worlds $w'$ compatible with what the speaker believes in $w$ at $t''$, $p$ is true in $w'$.

While the truth-conditions in (178) correctly account for the meaning of direct and
inferential evidential sentences by committing the speaker to the belief that $p$ is true, (178) makes incorrect predictions for evidential sentences in reportative contexts. The problem is that by using the evidential in a reportative context the speaker does not commit herself to the belief that the reported proposition is true. In the next section, I show how this problem can be solved.

6.2.2 Epistemic commitment in reportative evidential contexts

When evidential sentences that occur in reportative contexts are evaluated against the tests for a modal component, they show a different behavior compared to that in inferential and direct contexts. As (179) and (180) show, the speaker can assert $p$, and then continue the utterance by asserting $\neg p$. In both examples the speaker uses the evidential to repeat the information she just heard from her interlocutor, and then continues by directly denying its content.

(179) Context: Your roommate Maria, a successful businesswoman, made a commitment to write a book. You know that because Maria is busy, it is her sister who is ghostwriting the book. When one of your friends commends Maria for writing a book, you say:

Maria pišela kniga! Ta tja nito edin red

‘Maria is writing a book, [I hear]! She hasn’t written a single line.’

(180) Context: Your best friend, Ivan, has to work hard to support his family. His wealthy uncle died, but didn’t leave him any money. When you speak on the phone with your former classmate, she tells you that Ivan had inherited millions from his uncle. You know that this is not true:

Ostavil mu milioni! Ta toj puknata stotinka

‘He left him millions, [I hear]! He didn’t leave him a red cent.’
Moreover, the speaker can use the evidential construction in a reportative context to describe events which are part of historical heritage or cultural tradition, and thus are “known” to be true within a given cultural group. Most commonly such examples occur in history textbooks in passages describing events in the remote past, as well as in religious literature for the description of events considered to be true by believers. In such cases the speaker’s firm belief that \( p \) is true can be equated to knowledge. In (181), repeated from (103) the author uses the evidential form \textit{pobedil} ‘won’ to describe a victory of the Bulgarian ruler Khan Asparukh over the Byzantine emperor Constantine VI in 681, an event, considered to be a historical fact, whose truth no Bulgarian would doubt.

(181) Passage from a history textbook

\begin{quote}
No kolkoto i malko da znaem za tazi epohalna bitka, but whatever and little SUBJ know.1PL.PRES about this epic battle, nesëmneno e edno - Asparukh \\
unquestionable be.3SG.PRES one - Asparukh win.PERF.PLE

\textit{v prjako sraženie samija vizantijski imperator.}
\textit{in direct battle himself Byzantine emperor}
\end{quote}

‘No matter how little we know about this epic battle, one thing is unquestionable – Asparukh defeated the Byzantine emperor in the battle.’

The example in (104), repeated below as (182) is taken from a religious website for children. It re-narrates a biblical story from the Old Testament by using the evidential form of the verb \textit{zapovjadal} ‘ordered’. Because of the nature of the website, it is very likely that the author of the Bulgarian narrative has a firm belief that the events narrated in the Old Testament happened for a fact. Still, evidential constructions are used throughout the text.
(182) Gospel according to Matthew, chapter 26; Bible for children

Jesus ordered Peter to place the sword in scabbard.

These data show that the Bulgarian evidential in reportative contexts has a different distributions compared to inferential and direct evidential sentences. When the results of these tests are evaluated against the cross-linguistic data, Bulgarian patterns together with the reportative evidential in Quechua, which is felicitous in the context when the speaker knows that $p$ is false, and is argued by Faller (2002) not to have a modal component, rather than with the reportative modal evidential in St’át’imcets (cf. (183) and (184) vis-à-vis (180)):

(183) Reportative evidential in Quechua, from Faller (2002:191), ex. (152)

They left me a lot of money, but, as you have seen, they didn’t leave me one sol.

(184) Reportative evidential in St’át’imcets, from Matthewson et al. (2008:214), ex. (28)

They gave me $200, but they didn’t give me anything.

Should the fact that the Bulgarian evidential in reportative contexts consistently does not meet the requirements of the modal diagnosis be taken as evidence against the modal
analysis of the evidential? In what follows, I argue that such a conclusion is not warranted, by showing that the infelicity when the reported proposition is known to be false is not a necessary, but a sufficient condition for a construction with a modal component. Therefore, if we discover the expected pattern, i.e. if a construction is infelicitous when $p$ is known to be false to the speaker, which is the case with the inferential and the direct evidential sentences in (174) and (175), then such data can be taken as evidence that the sentence has a modal component. However, the absence of the expected characteristics, i.e. if the construction is felicitous when the proposition is known to be false to the speaker, which is what we find in reportative evidential contexts in (179) and (180), does not mean that the sentence lacks a modal component. The argument is based on the fact that sentences with propositional attitude verbs and reportative verbs, which are standardly analyzed as involving quantification over possible worlds, and thus satisfy the “modal” criteria as discussed in e.g. Faller (2002), allow the speaker to assert $p$ felicitously even if she believes that $p$ is false, as (185) shows.

(185) Ivan says that it is raining, but it is not raining.

In (185), the targeted expression $p$ (it is raining) is embedded under a reportative verb say, which in the recent semantic literature is analyzed as an intensional operator on a par with verbs such as believe (e.g., Ogihara 1996).\(^{35}\) The second part of the sentence asserts $\neg p$ (it is not the case that it is raining), but this assertion does not render the

\(^{35}\) Ogihara proposes the following truth conditions for say:

(i) From Ogihara (1996:90), ex. (41)

For any world $w$, interval $t$, individual $a$ and proposition $p$ (a set of worlds), $\llbracket \text{say}' \rrbracket$ $w(p)(a)(t)$ is true iff $a$ talks in $w$ at $t$ as if $\llbracket \text{believe}' \rrbracket$ $w(p)(a)(t)$ is true.

The ‘as if’ clause in this definition ‘is needed because this allows for the possibility that the agent lies or utters a sentence without intending to convey anything to anyone” Ogihara (1996:90).
whole utterance infelicitous. It is due to the fact that the seemingly contradictory statements, $p$ and $\neg p$, are attributed to different epistemic agents, and thus are interpreted with respect to different sets of worlds. In (185), $p$ is true in the worlds compatible with what Ivan believes, but it is false in the speaker’s belief worlds, the actual world happens to be one of them.

Because of the existence of sentences such as (185), the acceptability of a construction in the context when the proposition is known to be false to the speaker does not provide evidence against a modal analysis. I argue that with small modifications the analysis I proposed for the evidential in inferential and direct contexts can explain the meaning of the evidential in reportative contexts. Specifically, I assume that in reportative contexts the proposition in the scope of the evidential is evaluated not with respect to the speaker’s belief worlds, but with respect to the original reporter’s belief worlds, and in all that worlds, the proposition she reports is true. Thus, by using the evidential construction in reportative contexts, the speaker only asserts that $p$ is true in the original reporter’s belief worlds. The speaker’s belief worlds might be similar or different from that of the original reporter. In the latter case, the speaker can continue the evidential construction by asserting that she believes the opposite, as in (179) and (180).

36 The proposal that the proposition in the scope of the evidential is interpreted with respect to different worlds in reportative as opposed to inferential evidential contexts has some positive consequences for the analysis of the phenomenon that I have not discussed here, namely, the inability of evidential forms to report inferences about future events. The data in (i) and (ii) show that while the future evidential form can be used in reportative contexts to report future events, the same form is infelicitous in inferential evidential contexts. In order to report inferences about the future, the construction with the modal verb trjajba ‘must’, as in (iib), is used instead.

(i) Reportative evidential context: According to the weather forecast that you heard an hour ago, it is supposed to rain this evening. Your friend is planning a picnic in the evening, and when she asks you your opinion about the weather, you say:

Štjalo da vali dvečera.
FUT.PLE SUBJ rain.IMPERF.3SG.PRES tonight
‘It will rain tonight, [I heard].’
This discussion leads me to revise the truth conditions previously proposed for the Bulgarian evidential in (178). The revised truth conditions are given in (186).

(186) The meaning of the Bulgarian evidential (final)
For any model $M$, assignment function $g$, time $t$, and worlds $w, w'$

$$\text{[EVID } p \text{]}^{M, g, t, w} (w) (t) \text{ is defined iff the speaker has concrete evidence for } p,$$

where concrete evidence subsumes reports from someone else, evidence-based inferences and direct perception of the eventuality denoted by $p$.

If defined, $\text{[EVID } p \text{]}^{M, g, t, w} (w) (t) = 1$ iff there exists a time $t''$, located either before or at the evaluation time $t$, at which the speaker acquires the concrete

(ii) Inferential evidential context: When you looked at the sky this morning, it was cloudy. You inferred that it would rain tonight. Your friend is planning a picnic in the evening, and when she asks you your opinion about the weather, you say:

a. # Štjalo da vali dovečera.
   FUT.PLE SUBJ rain.IMPERF.3SG.PRES tonight
   Intended: ‘It will rain tonight, [I inferred].’

b. Trjabva da vali dovečera.
   must.PRES SUBJ rain.IMPERF.3SG.PRES tonight.
   ‘It is highly probable that it will rain tonight.’ (lit. ‘It must rain tonight.’)

Under the analysis proposed here, the unavailability of the inferential evidential reading and the contrast between inferential and reportative contexts can be explained as follows. Information presented by the inferential evidential construction is interpreted with respect to the speaker’s belief states. The evidential construction restricts the time of evaluation to the past (EAT < ST), when pronounced with a non-exclamative intonational contour, as in (iia). Such a configuration does not allow speakers to evaluate the proposition in the scope of the evidential with respect to their current belief states; only with respect to their past belief states. This configuration violates the maxim of quantity. The future evidential is infelicitous in inferential contexts for the same reason as the English example with the past tense verb believe is infelicitous in (iiia).

(iii) When you looked at the sky this morning, it was cloudy. You inferred that it would rain tonight. Your friend is planning a picnic in the evening, and asks you your opinion about the weather. At the time of the conversation, you still believe that it will rain tonight. You say:

a. # I believed it would rain tonight.

b. I believe it will rain tonight.

Unlike the evidential construction, constructions with modal verbs, such as (iib) can felicitously report inferences about the future because the present tense on the modal allows the speaker to assert the possibility of the future event with respect to her current knowledge state at ST, not with respect to some past time, as in the evidential.

Unlike the evidential in inferential context, in reportative contexts, the evidential can felicitously refer to future events, as in (i), because the speaker’s knowledge states are irrelevant in reportative contexts. By using a reportative evidential construction, the speaker reports attitudes of the original reporter (cf. John said that it would rain). See Smirnova (2011a) and Smirnova (2011b) on the relation between modals and evidentials in Bulgarian, and on the lack of future inferential evidentials in Balkan languages.

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evidence for \( p \), such that in all worlds \( w' \) compatible with what the relevant epistemic agent, the speaker or the reporter, believes in \( w \) at \( t'' \), \( p \) is true in \( w' \).

(186) presents a uniform analysis of the evidential construction in inferential, direct, and reportative contexts.\(^{37}\) In the next section, I show how the truth conditions in (186) can be derived compositionally.

6.3 The compositional semantic analysis

6.3.1 Formalization

The Bulgarian evidential construction has several semantic components, including the evidential operator, tense, aspect, and a sentence radical. (187) shows the order of composition in evidential sentences.

(187) \((\text{EVID(TENSE (ASPECT (Sentence radical))}))\)

The evidential operator has complex meaning. As the lexical entry in (188) shows, it has both a temporal and a modal component.

(188) \(\text{EVID}: \lambda Q \lambda w \lambda t \exists t'' \ [(t'' \leq t) \& \forall (w', t'')[(w', t'') \in MB_{DOX(\alpha)} (w, t'') \rightarrow Q(w')(t'')]]\),

where \( t'' \) is EAT; \( t \) is the time of evaluation for the whole evidential sentence; \( t''' \) is the structural equivalent of \( t'' \) in the belief worlds, i.e. the attitude holder’s now), \( \alpha = \) speaker (in direct and inferential evidential contexts); \( \alpha = \) reporter in reportative evidential contexts.

According to the proposed meaning in (188), the evidential operator encodes that there is a time at which the speaker of the utterance acquires the relevant evidence for the

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\(^{37}\)Speakers can also say things which they don’t believe are true. To account for these situations, the relevant part of the definition in (186) perhaps needs to be changed to “the speaker or reporter purports to believe”. I thank Craige Roberts for pointing this out to me.
proposition she reports, i.e. EAT (t''). The evidential specifies that the time of evidence acquisition can either precede or coincide with ST, as coded by \((t'' \leq t)\), where the temporal variable \(t\) is the time of evaluation of the utterance. When the evidential appears in matrix clauses, the time of evaluation is identified with ST.\(^{38}\) Similar to propositional attitude verbs such as believe, the evidential has a universal quantificational force, thus, asserting that the proposition in the scope of the evidential is true in all world-time pairs compatible with what the relevant epistemic agent believes in the actual world \(w\) at the time \(t''\). The time \(t'''\) is the structural equivalent of the evidence acquisition time \((t'')\) in the belief worlds; it corresponds to the attitude holder’s now (cf. von Stechow 1995; Ogihara 1996; Abusch 1997). Based on the analyses of sentences embedded under propositional attitude verbs (e.g., Ogihara 1996), I assume that the attitude holder’s now serves as the time of evaluation for the proposition in the scope of the evidential. Thus, the matrix clause evidential has two evaluation times, the evaluation time for the sentence in the scope of the evidential operator, i.e. the attitude holder’s now, and the evaluation time for the entire sentence, which is ST. The definition in (188) guarantees that similarly to modals, the evidential is compatible with different modal bases, which are contextually determined. In direct/inferential contexts, the proposition in the scope of the evidential is evaluated with respect to the doxastic modal base relativized to the speaker \((\text{MB}_{\text{DOX (sp)}})\). In reportative contexts, the proposition is evaluated with respect to the doxastic modal base relativized to the original reporter.

\(^{38}\) If the evidential is embedded under a propositional attitude verb, the time of the evaluation \((t)\) would be identified with the event time of the matrix verb (cf. Ogihara 1996, Abusch 1997, Gennari 2003). The Bulgarian evidential can appear in embedded clauses (cf. Sauerland and Schenner 2007), and the potential variability in the value of evaluation time is the reason for using a temporal variable \(t\), and not a designated variable \(st\), referring to ST in (188).
Turning now to the meaning of temporal operators, they specify the relation between RT and the time of evaluation. The future marker šte encodes that RT is in the future with respect to EAT. In the case of the precedence and the overlap relations, I assume that the relevant temporal information is encoded in the meaning of participial stems, which, I argue, function essentially as tenses, and specify that RT precedes or co-insides with EAT, respectively. I assume an intensional analysis under which tenses map properties of times into properties of times; they are of type <<w, i, t>>, <w, i, t>>:

\[(189)\]
\[(189)\] a. PRESENT: \[\lambda P_{<<w, <t>, t>>} \lambda w \lambda t \exists t' [P(w)(t') \& t' = t]\]

b. PAST: \[\lambda P_{<<w, <t>, t>>} \lambda w \lambda t \exists t' [P(w)(t') \& t' < t]\]

c. FUTURE: \[\lambda P_{<<w, <t>, t>>} \lambda w \lambda t \exists t' [P(w)(t') \& t' > t]\]

Aspectual operators, imperfective and perfective, have the same meaning as in e.g. Klein (1994). They specify the relation between ET and RT. I adopt an intensional analysis, and assume that aspectual operators map properties of eventualities to properties of times; they are of type <<w, ev, t>>, <w, i, t>>:

\[(190)\]
\[(190)\] a. IMPERFECTIVE: \[\lambda M_{<<w, <ev>, t>>} \lambda w \lambda e \exists \tau [M(w)(e) \& \tau(\tau)(w)]\]

b. PERFECTIVE: \[\lambda M_{<<w, <ev>, t>>} \lambda w \lambda e \exists \tau [M(w)(e) \& \tau(\tau)(w) \subseteq \tau]\]

Following Kaufmann (2005), a sentence radical is the denotation of a sentence before the application of temporal, aspectual, and modal operators. The sentence radical *Mary write book* translates into an expression of type <w, <ev, t>>:

\[(191)\] Mary write book: \[\lambda w \lambda e [\text{write.book}(w)(e)(m)]\]

In what follows, I present semantic derivations of evidential constructions in inferential,
direct, and reportative contexts, and discuss technical details of the analysis.

6.3.2 Evidential sentences in inferential and direct evidential contexts

A sentence in an inferential/direct evidential context signals that the speaker has acquired indirect/direct evidence for \( p \), and that in all worlds compatible with what the speaker believed at the time when she acquired the relevant evidence, \( p \) is true. Consider the semantic derivation of an inferential evidential sentence with a past stem imperfective participle, such as (192). Since (192) is pronounced with plain intonation, it is only compatible with situations in which EAT precedes ST. Thus, even though the evidential operator specifies that EAT can either precede or overlap with ST, the second scenario is ruled out, and the temporal relation between EAT and ST in (192) is EAT < ST. The semantic derivation of (192) is presented in (193).

(192) Inferential evidential context: Your late aunt Maria spent two months before her death in Paris. No one knows why. After the funeral, while sorting through Maria’s documents, you found a first chapter of an unauthored manuscript about Paris. It must be the case that Maria was writing a book. When one of the relatives starts to wonder what Maria did in Paris, you say:

Maria pisala kniga.
‘Maria was writing a book, [I inferred].’

(193) Semantic derivation:

a. IMPERF (Maria write book):
\[
\lambda M \lambda w \lambda t \exists e [M(w)(e) & t \subseteq \tau (e)(w)] (\lambda w \lambda e [write.book (w)(e)(m)])
\]
\[\equiv \lambda w \lambda t \exists e [write.book (w)(e)(m) & t \subseteq \tau (e)(w)]\]

b. PAST (52a):
\[
\lambda P \lambda w \lambda t \exists t' [P(w)(t') & t' < t] (\lambda w \lambda t \exists e [write.book (w)(e)(m) & t \subseteq \tau (e)(w)])
\]
\[\equiv \lambda w \lambda t \exists t' \exists e [write.book (w)(e)(m) & t' \subseteq \tau (e)(w) & t' < t]\]

c. EVID (52b):
\[
\lambda Q \lambda w \lambda t \exists t''[(t'' < t) & \forall (w', t'')[(w', t'') \in MB_{DOX_{(op)}} (w, t'') \rightarrow Q (w')(t'')]]
\]
\[ (\lambda w \lambda t \exists t' \exists e [write.book (w)(e)(m) & t' \subseteq \tau (e)(w) & t' < t]) \equiv \]
\[\lambda w \lambda t \exists t''[t'' < t) \& \forall (w', t''')[(w', t''') \in MB_{\text{DOX} \text{op}} (w, t'') \rightarrow \exists t' \exists e \left[ \text{write.book} (w')(e)(m) \& t' \subseteq \tau (e)(w') \& t' < t'''] \]\]

d. Application to ST:
\[\lambda w \exists t''[t'' < st) \& \forall (w', t''')[(w', t''') \in MB_{\text{DOX} \text{op}} (w, t'') \rightarrow \exists t' \exists e \left[ \text{write.book} (w')(e)(m) \& t' \subseteq \tau (e)(w') \& t' < t'''] \]\]

According to (193), (192) denotes the proposition that is true if there exists a time \(t''\), located in the past with respect to ST, at which the speaker acquires indirect evidence, such that for all world-time pairs \((w', t''')\) compatible with what the speaker believes in the actual world \(w\) at time \(t''\), there exists a time \(t'\), located in the past with respect to \(t''\), at which the event of Maria’s book writing takes place. The discourse context in (192) licenses inferential reading which means that \(\alpha = \text{speaker}\), so that the proposition in the scope of the evidential is evaluated with respect to belief worlds of the speaker.

Regarding the temporal relations in (193d), the subset relation between RT and ET \((t' \subseteq \tau (e))\) is specified by the imperfective aspect. The temporal relation between RT and the attitude holder’s now \((t' < t''')\) is contributed by the semantics of the past stem participle. Since the attitude holder’s now in the belief worlds of the speaker \((t''')\) and the evidence acquisition time \((t'')\) in the actual world are structural equivalents of one another, these times are temporally identical, i.e. \((t'' = t''')\) (cf. Gennari 2003). Thus, RT and, consequently, the activity of book writing are in the past with respect to the evidence acquisition time \((t' < t'')\). Because the context only supports the precedence relation between EAT and ST \((t'' < st)\), it follows that RT and, consequently, the book writing activity are in the past with respect to ST \((t' < st)\).

The derivation of an inferential evidential sentence with a present stem imperfective participle, such as (194), proceeds in a similar manner. The translation of
(194) is given in (195). Because the context in (194) is not associated with surprise, it only supports a precedence relation between EAT and ST, which corresponds to $t'' < st$ in the translation in (195).

(194) Inferential evidential context: Your new roommate Maria spends all her time writing, but she never talks about her work. Yesterday, while cleaning the house, you found instructions on how to write a book on Maria’s desk. Later today, when one of your friends asks you what Maria does, you say:

Maria pišela kniga.

‘Maria is writing a book, [I inferred].’

(195) $\lambda w \exists t'' [(t'' < st) \& \forall (w', t''') [(w', t''') \in MB_{DOX(op)} (w, t'') \rightarrow 
\exists t' \exists e [\text{write.book}(w')(e)(m) \& t' \subseteq \tau (e)(w') \& t' = t''']]$

Since the participle in (194) has a present stem, RT and the attitude holder’s now coincide ($t' = t'''$). Because of the identity relation between $t'''$ and the evidence acquisition time $t'' (t''' = t'')$, RT coincides with $t'' (t' = t'')$, and since $t'$ is a subset of book writing event, eventuality is ongoing at the time when the speaker acquires the relevant evidence. The translation leaves it open as to whether the event of Maria’s writing a book terminates prior to ST, or continues throughout the utterance time. The latter option is possible due to the superinterval property of statives/activities (e.g. Gennari 2003). As predicted, (194) is felicitous in situations in which the eventuality is ongoing at ST.

In both examples considered so far, EAT occurred in the past of ST. I use a direct evidential sentence in (196) to show how the derivation of a sentence with an overlapping temporal relation between EAT and ST proceeds. (196) differs from (197) in that it has an exclamative intonational contour. Since only the contexts in which EAT coincides with ST can satisfy the requirement imposed by the exclamative illocutionary force operator in (166), repeated in (198), it is the overlap relation between EAT and ST
which is picked up in the case of (196), hence the condition $t'' = st$ in the translation in (172).

(196) Direct evidential context: Your new roommate Maria spends all her time writing, but she never talks about her work. Today, while cleaning the house, you discover an unfinished manuscript authored by Maria. You say to yourself:

Maria pišela kniga!
‘Maria is writing a book, [I see].’

(197) $\lambda w \exists t'' [(t'' = st) & \forall (w', t'')[(w', t'') \in MB_{DOX(p)} (w, t'') \rightarrow
\exists t' \exists e [\text{write.book}(w')(e)(m) & t' \subseteq \tau(e)(w') & t' = t'']]$}

(198) EVIDENTIAL E-FORCE($p$) is expressively correct in context $C$ iff $p$ is salient in $C$ and the speaker in $C$ is surprised that $p$ at the time of the utterance (adapted with slight modifications from Rett 2009:609).

According to (197), (196) denotes the proposition that is true if there exists a time $t''$, which coincides with ST ($t'' = st$) such that the speaker acquires the relevant evidence at $t''$, and in all world-time pairs compatible with what the speaker believes in $w$ at $t''$, there exists an eventuality of Maria’s writing a book, such that the reference time $t'$, which coincides with the attitude holder’s now ($t' = t'''$) is the subset of the writing a book eventuality. Because of the identity relation between $t''$ and $t'''$, the eventuality of book writing is ongoing at the time of evidence acquisition $t''$ and at ST. The discourse context guarantees that the proposition in the scope of the evidential is evaluated with respect to the belief worlds of the speaker, and produces the direct evidential reading.

**6.3.3 Evidential sentences in reportative evidential contexts**

An important difference between reportative and inferential/direct evidential sentences is that in the former the proposition is evaluated with respect to the original reporter’s
belief worlds. In this respect, reportative evidential sentences function similar to reports *de dicto* (Ogihara 1996; Abusch 1997) in that they do not commit the speaker to the belief that the proposition in the scope of the evidential is true. Such an assumption makes the right predictions for reportative sentences such as (199). The semantic translation of (199) is given in (200). Since the context in (199) does not have a surprise component, it triggers the precedence relation between EAT and ST, i.e. \( t''<st \) in the translation below.

(199) Reportative evidential context: You accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, spent last year writing a book, and that the book has just been published. At the class reunion, when someone asks you what Maria did last year, you say:

Maria pisala kniga.

‘Maria was writing a book, [I heard].’

(200) \( \lambda w \exists t''[(t''<st) \& \forall (w', t''')(w', t''') \in MB_{DOX(reporter)} (w, t'') \rightarrow \exists t' \exists e [\text{write.book}(w')(e)(m) \& t' \subseteq \tau(e)(w') \& t < t'''] \]

According to (200), (199) denotes the proposition that is true if there exists a time \( t'' \), located in the past with respect to ST \( (t'' < st) \), at which the speaker acquires the relevant evidence, so that in all world-time pairs compatible with what the speaker’s informant believes in \( w \) at \( t'' \), there exists a time \( t' \), located in the past of the reporter’s now \( (t' < t''') \) such that the event of Maria’s writing a book is ongoing at \( t' \).

The discourse context in (199) guarantees that the proposition in the scope of the evidential is interpreted with respect to the belief worlds of the original reporter. As shown in (200), the proposition is interpreted with respect to the original reporter’s now \( t''' \). Since the original reporter’s now \( t''' \) is temporally identical to the time \( t'' \), at which the report is made in the actual world, it follows that the event of Maria’s writing a book
is in the past with respect to both the original reporter’s now and \( t'' \), which is the speaker’s evidence acquisition time. The analysis correctly predicts that the event of book writing is located in the original reporter’s belief worlds, but not necessarily in the speaker’s belief worlds or in the actual world, as (201) shows.

\[
(201) \text{Graphic representation of temporal relations in (174):} \\
\begin{array}{c}
\text{original reporter’s now} \quad \text{the reporter’s belief world (w‘)} \\
\text{evidence acquisition} \quad \text{the reporter’s belief world (w‘)} \\
\text{actual world (w)}
\end{array}
\]

The proposed analysis accounts for the meaning of the Bulgarian evidential construction in inferential, direct, and reportative contexts. In the next chapter, I discuss previous formal analyses of evidentiality in Bulgarian and evaluate them vis-à-vis the current proposal.

### 6.4 Summary of the analysis

In this chapter, I proposed a compositional semantic analysis of the evidential utterances in Bulgarian. The analysis shows that the evidential operator has both a temporal and a modal component. The temporal component encodes the temporal location of EAT with respect to ST. The modal component encodes the modal force (universal), and the epistemic modal base. It guarantees that the proposition in the scope of the evidential operator is interpreted with respect to the belief worlds of the relevant epistemic agents, the speaker in the case of the inferential and direct evidential sentences, and the original reporter in the case of reportative evidential sentences. In the next section, I discuss previous formal semantic analyses of evidentiality in Bulgarian.
While research into the question about evidential meaning in Bulgarian has a long history (e.g., Jakobson 1957; Aronson 1967; Comrie 1976:109; Friedman 1986, 2004; Dahl 1985:150-152), it is only recently that this phenomenon became subject of attention in the formal semantic literature. In this section, I consider Izvorski’s (1997) and Sauerland & Schenner’ (2007) analyses of evidentiality in Bulgarian.

7.1 Izvorski (1997)

One of the most interesting and influential aspects of Izvorski’s analysis is the assumption that evidentials should be analyzed as epistemic modals. In her formal analysis, shown in (202), similarly to modals, evidentials (i) have (universal) modal force, (ii) are evaluated with respect to an epistemic modal base (function \( f \) provides a set of sets of worlds in which the speaker acquires evidence for \( p \)), and (iii) have an ordering source, which restricts the original domain of quantification, provided by the modal base (function \( g \) orders the worlds according to how reliable the evidence is, as judged by the speaker).

\[
\begin{align*}
\text{EV}_p \equiv^f_g & = \\
\{ w \in W : \forall u \in W [ (u \in \cap f(w)) \land \neg \exists v \in W (v \in \cap f(w) \land v <^g_w (u)) \rightarrow u \in p] \}
\end{align*}
\]

According to the definition in (202), “an indirect evidentiality statement EV \( p \) is true in a
world $w$ with respect to the conversational backgrounds provided by $f$ and $g$, iff $p$ is true in all worlds accessible from $w$ which come closest to the ideal represented by the speaker’s beliefs regarding the available indirect evidence in $w$” (Izvorski 1997).

While the intuition that the evidential functions as an epistemic modal seems to be correct, there are some technical problems with Izvorski’s analysis, which suggest that it cannot be adopted in its original form. First, the assumption that the proposition in the scope of the evidential operator is necessarily true with respect to the speaker’s knowledge state makes a correct prediction for the evidential construction in inferential and direct evidential contexts. However, it is incorrect to assume that by using the evidential construction in a reportative context, the speaker believes that $p$ is necessarily true. Izvorski attempts to circumvent this problem by assuming that the ordering source imposes additional restrictions on the set of worlds provided by the modal base. She proposes that worlds in which the source of information is considered to be unreliable are eliminated, so the actual domain of quantification is smaller than the original set of worlds provided by the modal base. This process affects the modal force, allowing it to vary from universal (if no worlds are eliminated) to existential (if there is the difference between the original and the resultant set) (cf. also Faller’s 2002 discussion of Izvorski). However, even this variability in the modal force, “between weak possibility to necessity” (Izvorski 1997), still commits the speaker to the belief that $p$ is at least possible. The problem is that the reportative evidential construction does not communicate anything about the speaker’s belief. In fact, the speaker can utter the reportative evidential in the contexts in which she knows that the proposition she report is
false, and in the contexts in which she firmly believes it to be true. Therefore, a more suitable assumption is that in the reportative evidential context the proposition is interpreted with respect to the reporter’s belief system, as I suggested in chapter 6.

The second aspect of Izvorski’s analysis that requires further elaboration is the fact that it lacks a temporal component. Because of this, the analysis overgeneralizes, and predicts evidential constructions to be possible, when they are, in fact, infelicitous. Thus, Izvorski’s analysis cannot account for the contrast between (74) and (75) repeated below in (203) and (204).

(203) Reportative evidential context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, is now writing a book. A couple of days later, at the class reunion, when someone asks you what Maria is doing now, you say:
Maria пишела                          / # пиšala                          книга.
Maria write.IMPERF.PRES.PLE/ # write.IMPERF.PAST.PLE book
‘Maria is writing a book, [I heard].’

(204) Reportative evidential context: Last week you accidentally ran into your former classmate Ivan, who told you that Maria, an old friend of yours, spent last year writing a book, and that the book has just been published. At the class reunion, when someone asks you what Maria did last year, you say:
Maria писалa                          / # пиšela                          книга.
Maria write.IMPERF.PAST.PLE/ # write.IMPERF.PRES.PLE book
‘Maria was writing a book, [I heard].’

Both contexts satisfy the felicity conditions for the Bulgarian evidential proposed by Izvorski, specifically (i) the speaker has indirect evidence for p, and (ii) p is necessary in all worlds compatible with what the speaker believes. Thus, Izvorski’s analysis would predict that both forms are possible in either context.

Moreover, another aspect of Izvorski’s analysis that deserves further scrutiny is the assumption that the evidential construction in Bulgarian functions as an indirect
evidential. Such an analysis predicts that the evidential construction cannot appear in direct evidential contexts, but this is not the case. The data presented in this paper argues that the Bulgarian evidential should be analyzed as compatible with both direct and indirect evidential readings (cf. Lee 2010 on Korean).

Finally, some comments about the relation between the present perfect morphology and evidentiality, as analyzed by Izvorski, are in order. Izvorski suggests that the present perfect morphology is utilized to express evidential meaning in typologically unrelated languages because it supplies grammatical configuration, which, besides the traditional temporal relations, can also specify the relation between worlds in the modal domain. When the temporal relations of the present perfect are translated into the modal domain, the construction (i) can produce an indirect evidential reading, and (ii) is not compatible with a direct evidential reading, which fits the domain of the distribution of the Bulgarian evidential, as analyzed by Izvorski. The incompatibility of the present perfect construction with the direct evidential reading follows from the way the temporal relation $\text{ET} \not\subseteq \text{ST}$, supplied by the present perfect, translates into the modal domain. According to Izvorski, it signals that the worlds in which the speaker knows $p$ (the modal equivalent of ET) are outside the epistemically accessible worlds $f(w_s)$.39 “In other words, the resulting interpretation is that the speaker has no direct evidence for $p$” (Izvorski 1997). Note, however, that this argument confuses the two notions (i) the status of information in the speaker’s belief system and (ii) the source. The fact that the speaker does not know $p$, does not mean that she does not have direct evidence for $p$ (cf. Ginet 1975:117). A similar

39 In Izvorski’s analysis the temporal relation $\text{ET} \not\subseteq \text{ST}$ is inferred from (i) $\text{ET} \not\subseteq \text{RT}$ (the meaning of the perfect); and (ii) $\text{RT} \subseteq \text{ST}$ (the meaning of the present tense).
problem arises with Izvorski’s argument when she tries to derive the compatibility of the present perfect with indirect evidence. She suggests that the temporal relation encoded by the present perfect, namely, the consequent state of the eventuality holds at the ST, in modal terms amounts to the consequent state of \( p \) being known to the speaker, “or in other words, the speaker has indirect evidence for \( p \)” (Izvorski 1997). The first problem with this argument is that the knowledge of the consequent state does not amount to having indirect evidence for \( p \), but in fact, is compatible with the speaker’s witnessing the event proper. We can easily imagine a situation in which the speaker has witnessed the event of e.g. Maria losing a tennis match to Peter, and also its consequent state, e.g. the event of Maria’s crying. The second problem is that indirect evidence can be available to the speaker prior to the event termination. Thus, the speaker can infer that her roommate is writing a book, while the book writing event is still ongoing. In light of this discussion, it seems that Izvorski’s explanation for the correlation between the present perfect and evidential reading cannot be maintained.

The question of why the present perfect morphology is routinely utilized in evidential constructions might be due to the fact that it provides the right temporal configuration to constrain the location of EAT with respect to ST. The argument goes as follows. Under the “extended now” analysis of the present perfect (e.g., McCoard 1978, Dowty 1979, Pancheva 2003 on the analysis of the Bulgarian perfect within the “extended now” framework), the perfect operator introduces an interval with respect to which the eventuality is temporally located. The left boundary of the interval is determined by temporal adverbs such as, e.g., \textit{since Tuesday}, or any other contextually salient time, while the right
boundary of the interval is constrained by the tense of the copula. In the present perfect, the right boundary is identified with ST, as (205) schematized in (205).

(205) Non-future interval introduced by the present perfect:

```
...\\\\\\\\\\\\\\ET
____ST
```

What is important is that in such an analysis of the present perfect the temporal location of ET with respect to ST is restricted to a non-future interval. The non-future temporal interval introduced by the present perfect corresponds to the range within which EAT can be located in evidential sentences. However, the two constructions, the present perfect and the evidential, differ in the number of temporal layers involved. Thus, in Pancheva’s analysis of the present perfect, the “extended now” serves as the reference interval with respect to which ET is located. If the participial has the imperfective aspect, the reference interval introduced by the perfect is a subset of the eventuality denoted by the participle. If the participle has the perfective aspect, the reference interval is a superset of the eventuality. On the other hand, in evidential sentences, the “extended now” interval provides a range within which the time of evidence acquisition is instantiated. This time then serves as the time of evaluation with respect to which RT and ET are temporally located.

In the analysis spelled out in 6.3, I assume that the temporal relation between EAT and ST is encoded in the meaning of the evidential operator, instead of being derived compositionally from the meaning of the present tense operator and the meaning of the perfect (cf. Pancheva 2003 for a compositional analysis of the present perfect in the indicative paradigm). This assumption is motivated by the fact that the evidential construc-
tion, which has the present perfect as its morphological component, and the present perfect construction of the indicative paradigm have non-alignable temporal properties, as Izvorski (1997) has shown (cf. the discussion in chapter 4, section 4.1). Izvorski observed that “in perfect of evidentiality statements, the morphology of the present perfect does not play its usual temporal-aspectual role; instead its contribution is that of an epistemic modal” (Izvorski 1997:233). While I agree with Izvorski that the contribution of the present perfect morphology is different in evidential statements, I maintain that the reason why evidential construction employs the present perfect morphology is due to the fact that the latter provides the “right” temporal configuration within which EAT can be located. Other potential choices, such as the past perfect or the future perfect would not suffice. Past perfect morphology would introduce a temporal interval, whose right boundary is some past time. Such a configuration would make an overlap between EAT and ST impossible. The future perfect would introduce an interval whose right boundary is some future time, and thus would predict that EAT can be located in the future with respect to ST. Such a temporal configuration, while theoretically possible, is unlikely on pragmatic grounds. Such a construction would commit the speaker to the assertion that in the future she will have evidence for $p$. However, since the process of evidence acquisition is not always under speakers’ direct control, such an assertion seems to be at least counter-intuitive. In light of this, the present perfect seems to be a natural choice, and it is probably why languages consistently employ this construction to express evidential meaning. Admittedly, this question requires further exploration, and a thorough cross-linguistic comparison.
7.2 Sauerland & Schenner (2007)

Sauerland & Schenner’s paper (henceforth S&S) is a case study of the meaning of the Bulgarian evidential in its reportative usage in main and in embedded clauses. Similarly to Izvorski (1997), they propose that the evidential presupposes that the speaker has reportative evidence for \( p \), but unlike Izvorski they argue that the reportative evidential simply asserts \( p \).  

\[(206) \text{The interpretation of } \left[ \text{rep} \right](y, v)(p)\]
\[\text{a. Assertion: } p\]
\[\text{b. Presupposition: } y \text{ has in } v \text{ reportative evidence for } p\]

The assumption that by using the evidential the speaker asserts \( p \) predicts that such a construction is infelicitous if the speaker believes the proposition in the scope of the evidential to be false, but it is a possibility as the data presented in section 5.3 have shown. Since other aspects of S&S’ analysis, i.e. the lack of the temporal component, and the assumption that the availability of reportative evidence is presupposed, are similar to Izvorski’s, I don’t discuss them further, but refer the reader to the discussion in the previous section.

In what follows, I focus on methodological and theoretical aspects that guide the authors’ work on the meaning of evidentials in embedded clauses, a novel and largely unexplored question. While I myself don’t have much to say about embedded evidentials at this point, the question about what kind of meaning evidentials encode, the source of information alone (as S&S seem to assume), or the source of information and the

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40 S&S refer to the evidential as “the reportative” in their paper, and gloss the participle as REP. This might be misleading because the same form can express an array of different meanings, and therefore the glossing which reflects its grammatical category, i.e. participle, might be preferred over the one that is based on its function, e.g. “reportative” or “inferential”.  

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epistemic commitment (Izvorski 1997), bears directly on the theoretical issues discussed in the current paper and merits further discussion.

In order to establish whether evidentials in embedded clauses encode the speaker’s or the subject’s evidence, the authors compare the behavior of the evidential in contexts with two epistemic agents, the subject and the speaker, who have conflicting source of information, i.e. hearsay vs. direct. In (207), the subject, i.e. Maria, has direct evidence, and the speaker has reported evidence. The fact that in (207) the participial imal ‘have’ is preferred over the indicative form ima, which S&S assume marks information as direct, is taken as evidence that the distribution of the form – the evidential in its reportative usage – must correlate with the speaker’s source of information – report.

(207) From Sauerland and Schenner (2007), ex. (8)

Scenario: Maria saw Todor’s hair and tells me “Todor ima červena kosa.”
(Todor has red hair. I believe her.)

a. ? Maria kaza, če Todor ima červena kosa.
   Maria said that Todor have-DIR red hair
b. Maria kaza, če Todor imal červena kosa.
   Maria said that Todor have-REP red hair

By showing that the reportative form is infelicitous when the speaker’s source of information is direct perception (208b), the authors conclude that the usage of the evidential form reflects the speaker’s and not the subject’s source of information.

(208) From Sauerland and Schenner (2007), ex. (8)

Scenario: Milena told Maria that Todor has red hair and Maria believes her. Maria says: “Todor imal červena kosa.” I saw Todor’s red hair with my own eyes.

a. Maria kaza, če Todor ima červena kosa.
   Maria said that Todor have-DIR red hair
b. * Maria kaza, če Todor imal červena kosa.
   Maria said that Todor have-REP red hair

The binding condition in (209) is added to the meaning of the evidential, to ensure that
this principle is obeyed. (209) specifies that in examples like (207b), it is not Maria, but the speaker who has reported information.41

(209) The arguments of REP $y$ and $v$ must be bound by the context operators of the matrix clause.

S&S’s argumentation outlined above is based on the assumption that the use of the indicative as opposed to the evidential encodes the differences in the source of information, the evidential marking information as reportative, and the indicative as direct. However, a closer look at the data suggests that the distribution of forms crucially depends on the speaker’s knowledge state and her belief system, and not so much on her source of information. Thus, the indicative can be used irrespective of what the speaker’s evidence, direct perception or report, is, as long as the speaker believes the proposition she reports is true for a fact. For example, if the speaker receives reportative information from a highly reliable source, e.g. her mom, which leads her to know that $p$ (Todor has red hair) is true, the indicative form is not only felicitous, but is actually preferred, as (210) shows.

(210) Context: Your sister, who lives abroad, had a baby two months ago. Your mom visited her and helped to take care of the baby. When she returned, she told you that baby Todor is a red-hair. When your husband asks you what the baby looks like, you say:

a. Majka kaza, če Todor ima červena kosa.
   Mom said that Todor have-DIR red hair
b. ? Majka kaza, če Todor imal červena kosa.
   Mom said that Todor have-REP red hair

Similarly, if the speaker has direct observation of a phenomenon, e.g. she saw that Todor

41 Alternatively, this information can be encoded in the meaning of the evidential, as suggested in the current paper. While the choice of the grammatical level at which this information can be represented, i.e. the syntax-semantics interface vs. the lexical semantics, is largely determined by theoretical preferences, the binding condition can be problematic if S&S’s framework is enriched with the component that encodes the speaker’s epistemic commitment. For evidentials in reportative contexts, it would signal the commitment to the truth on the part of the speaker, which is incorrect.
has red hair, and if this perception justifies her knowledge that \( p \) is true, she would use the indicative form, and not the evidential, even if she also has heard the report about Todor’s hair color from someone else, as in (208). In both contexts, (209) and (210), the usage of the indicative correlates with the speaker’s epistemic commitment, and not with her information source, which is different in each case. Note also that both (208) and (210) satisfy the requirement for a hearsay report, but this is not sufficient to trigger the reportative. In these cases the availability of the reportative evidence, which is supposed to trigger the evidential, is overridden by the speaker’s knowledge state. Apparently, the evidential, when embedded under \( kazvam \) ‘say’, is not compatible with the situations in which the speaker has knowledge of \( p \). This incompatibility can be explained on pragmatic grounds. While the reportative form itself does not communicate anything about the speaker’s attitude toward the information, when the evidential is embedded under the verb of saying, as in (208) and (210), the information about the source, i.e. hearsay, conveyed by the evidential is already expressed by the main verb, i.e. \( kazvam \) ‘say’. This redundancy gives rise to the implication that the speaker, by distancing herself from the information she reports, might not vouch for its truth, but this implicature is incompatible with the contexts in which the speaker is committed to the truth of \( p \). In such a situation the indicative, which is neutral with respect to the speaker’s commitment when it is embedded under reportative verbs, is the preferred choice.

This discussion shows that the speaker’s epistemic commitment affects the distribution of the evidential and the indicative in a non-trivial manner. It provides additional support for the position that evidentiality cannot be analyzed independently of
the speaker’s knowledge state.

The final aspect of S & S’s analysis that deserves further discussion concerns the distribution of embedded evidentials. The analysis provided by the authors does not explain why some of the verbs allow embedded evidentials while others do not. Specifically, the authors mention that verbs such as *iskam* ‘want’ do not select embedded evidentials. This observation extends to all verbs that select subjunctive complements. Subjunctive morphology is not compatible with the evidential morphology in Bulgarian, as the discussion in chapter 4 (section 4.3) has shown. The interaction between evidentiality and mood requires a more detailed exploration.

### 7.3 Summary

In this chapter, I discussed two previous formal analyses of evidentiality in Bulgarian, Izvorski (1997) and Sauerland and Schenner (2007). The discussion showed that previous analyses (i) lack the temporal component; (ii) cannot account for the fact that in reportative contexts the speaker does not have to be committed to the truth of the proposition expressed by the evidential sentence; (iii) do not consider direct evidential cases. All cases problematic for the previous analyses can be successfully handled by the analysis I present in chapter 6, which suggest that the analysis advocated here should be preferred to its alternatives on empirical and theoretical grounds.
CHAPTER 8: THE STRENGTH OF EPISTEMIC COMMITMENT AND THE EVIDENTIAL-INDICATIVE OPPOSITION

This chapter is about the typological status of the evidential system in Bulgarian. In section 8.1, I discuss the existing typological criteria for classification of evidential systems, and show that they cannot be applied to Bulgarian. In section 8.2, I discuss the indicative-evidential opposition and show that the core semantic difference between the indicative and the evidential construction is in the strength of epistemic commitment. By using the indicative, the speaker signals that she knows the information she reports is true. Evidential, on the other hand, expresses a weaker epistemic commitment. This analysis suggests that the indicative – evidential system in Bulgarian should be analyzed not in terms of information source but in terms of the strength of epistemic commitment.

8.1 Criteria for the typological classification of evidential systems

Studies of evidentiality are often concerned with the question of what kind of information source an evidential construction encodes to the exclusion of other sources (cf. Faller 2002, Matthewson et al. 2008, McCready and Ogata 2006:163, Matthewson 2010a). Moreover, the typological classification of evidential systems in a given language depends on the range of meanings that evidential morphemes can express and how they partition informational space (cf. Aikhenvald 2003). Languages that grammatically encode evidentiality usually have an inventory of evidential morphemes, distinct from
one another in terms of what type of information they encode. For example, St’át’imcets has an indirect inferring evidential of result morpheme -an’, reportative ku7, and an inferential morpheme -k’a (Matthewson et al. 2008). In Quechua, direct, inferential and reportative evidential meanings are encoded by -mi, chá, and -si, respectively (Faller 2002). When compared to languages such as Quechua and St’át’imcets, the evidential system in Bulgarian looks different in that it has only one evidential construction. Moreover, the evidential construction can express a variety of information sources, such as direct perception, reports, and evidence-based inferences. Therefore, the question of what kind of meaning evidential forms can and cannot encode in Bulgarian, and, consequently, the question of how the evidential system in Bulgarian should be classified from a typological perspective, can only be addressed when the meaning of evidential forms is compared to that of the indicative forms. In what follows, I discuss the distribution of the indicative forms vis-à-vis evidential forms and propose that it is best analyzed in terms of what each paradigm encodes about the strength of epistemic commitment (cf. Aronson 1967, Friedman 2004).

8.2 The indicative-evidential opposition on the epistemic commitment scale

The need to evaluate the meaning of evidential forms against the meaning expressed by the indicative was recognized in the previous literature (Izvorski 1997, Aikhenvald 2004). The generalizations proposed in the previous literature are inevitably affected by the scope of the data considered. Thus, Izvorski discusses the meaning of the evidential sentences in Bulgarian in reportative and inferential contexts, to the exclusion of the
direct evidential contexts. According to her, the opposition between the evidential and the indicative is best understood in terms of the contrast between indirect and direct information sources, respectively. She writes: “According to Willett (1988), it is quite common for languages to have grammaticized only a two-way distinction between direct and indirect evidence, and typically, it is the indirect evidential that is morphologically marked. This is exactly the case in the languages with the perfect of evidentiality: the PE-morphology marks both reports and inferences and sentences without the PE-morphology are interpreted as based on direct evidence, i.e. on evidence justifying belief” (Izvorski 1997:225).

A similar classification of Bulgarian is also advocated in Aikhenvald (2004). According to Aikhenvald’s system of classification, the evidential system in Bulgarian is analyzed as either her A1 type, which morphologically marks the distinction between firsthand vs. non-firsthand information (Aikhenvald 2004:288, 298) or her A2 system, non-firsthand vs. everything else (Aikhenvald 2004:264). However, once the contexts in which the evidential construction receives direct perceptual interpretation are taken into consideration, the classification of the indicative-evidential opposition in terms of direct vs. indirect information source becomes hard to maintain. On the one hand, the evidential is compatible with both direct and indirect information sources, as the data in (211) – (213) show, but on the other hand, the indicative can be used to express direct and indirect information source, as the discussion below shows.

(211) Reportative evidential context: Your sister told you over the phone that her daughter Maria is practicing for an upcoming piano performance right now and therefore cannot talk on the phone with you. After this conversation, your mom asks you what Maria is doing. You say:
Maria svirela na piano.
Maria play.IMPERF. PRES. PLE on piano
‘Maria is playing the piano, [I heard].’

(212) Inferential evidential context: Your niece Maria stays with you over the summer. She usually either stays in her room and reads or plays the piano in a practice room. When you come home from work, you see that Maria is not in her room. It must be the case that she is now in the practice room playing the piano. When your husband calls you, and asks you what Maria is doing, you say:
Maria svirela na piano.
Maria play.IMPERF. PRES. PLE on piano
‘Maria is playing the piano, [I inferred].’

(213) Direct evidential context: Your niece Maria stays with you over the summer. She is a talented piano player, but she recently lost a prestigious piano competition. She quit playing and usually spends most of the time reading in her room. While passing by Maria’s room today, you see her playing the piano. You say:
Maria svirela na piano!
Maria play.IMPERF. PRES. PLE on piano
‘Maria is playing the piano, [I see]!’

Despite the fact that the indicative in Bulgarian is often analyzed as encoding first-hand experience or direct information source (Bulgarian academy grammar 1994; cf. Aronson 1967:87 on the discussion of this traditional view), such a generalization cannot be maintained in view of the contrast in (214) and (215) below.

(214) Context: Your niece Maria stays with you over the summer. Maria is preparing for the audition in a prestigious art school in New York. Yesterday she played the piano all day. The piano is located in the living room of your small apartment, and you saw and heard her play. When Maria mom phones from abroad and asks what Maria did yesterday, you say:
Maria sviri na piano.
Maria play.IMPERF.3SG.PAST on piano
‘Maria played the piano.’
While in (214) the indicative form *sviri* ‘played’ refers to the event directly perceived by the speaker, in (215), the same form describes an event that occurred centuries ago and, therefore, couldn’t have been possibly witnessed by the author. These data show that the meaning of the indicative cannot be explained in terms of direct evidence.\(^{44}\)

Aware of this problem, Aronson offers an alternative analysis of the meaning of the indicative. In his discussion about the differences between the past tense forms of the indicative paradigm and the past tense forms of the evidential paradigm, he observes that the meaning of the indicative past tenses as opposed to evidential once is best understood in terms of *confirmativity*, or “the vouching for the truth of the statement narrated” (Aronson 1967:87). This generalization is presented in the context of the discussion of the example in (216).

(216) Aronson (1967:87)

\begin{verbatim}
Edna zvezda padna, - kaza Marin.
One star fell.IMPERF.3SG.PAST say.PERF.3SG.PAST Marin

Umrja njakoj
die.PERF.3SG.PAST someone
“A star fell’, said Marin. ‘Somebody died.”
\end{verbatim}
Aronson writes: “The first aorist, padna, indicates that the falling of the star was witnessed by Marin. But the second, umrja, clearly refers to an unwitnessed action. […] The nuance conveyed by this example is one of absolute certainty: the fact that someone died is just as certain to the speaker as if he had himself witnessed the death. The speaker vouches for the truth of the narrated event” (Aronson 1967:87). Aronson applies the term ‘confirmative’ to the discussion of the meaning of the past indicative vs. past evidential tenses.\(^{45}\) In what follows, I propose that the analysis in terms of strength of epistemic commitment can be extended to characterize the indicative-evidential opposition, irrespective of the temporal reference.

Recently, reference to knowledge in the context of the discussion about the meaning of the indicative was made in Sauerland and Schenner (2007). They observe that “the direct [the indicative form, A.S.] is morphologically unmarked and indicates that the speaker has firsthand evidence for the proposition expressed. (The same form is also used as a default for general knowledge.)” (Sauerland and Schenner 2007:527). Moreover, at the beginning of the paper, they use the phrase “I know from my own experience” to gloss the indicative sentence in (217).

\[(217)\] Sauerland and Schenner (2007:527), ex. (3)
Todor ima červena kosa.
Todor has.dir red hair
‘I know from my own experience that Todor has red hair.’

In the subsequent discussion, however, the authors conflate both firsthand experience and knowledge. Even their description of (217) in the text – “[183] conveys that the speaker directly witnessed that Todor has red hair.” (Sauerland and Schenner 2007:527) – does

\(^{45}\) For Aronson, the difference between the indicative and the evidential is characterized in terms of the status-mood opposition.
not seem to differentiate between the two concepts.\footnote{46 Similar conflation between knowledge and direct experience can be observed in the descriptive literature. According to Scatton, “Indicative forms relate events personally witnessed or otherwise assumed to be true by speakers. For events not witnessed or known only through hearsay Bulgarian uses so-called “renarrated” forms” (Scatton 1993:214). According to traditional grammar, the indicative forms are used to denote real events (Bulgarian academy grammar 1994:351). Such a characterization is not satisfying, since future events, for example, have not been realized at the time of the utterance, and thus are not real, yet they can be referred to by the indicative forms in Bulgarian. Similarly, present tense forms can be used to refer to generic or habitual events, which do not necessarily meet the description of real events.}

In what follows, I show that knowledge and firsthand experience or direct evidence are not equivalent, and it is knowledge, and not firsthand experience, that is a necessary condition for the usage of the indicative in Bulgarian. First, the speakers use the indicative for the presentation of scientific facts that couldn’t have been directly experienced by the speaker but are known by them to be true. Thus, in (218) and (219) the speaker uses the indicative verb forms, even though she does not have firsthand evidence for the propositions reported by these sentences.

\begin{itemize}
\item[(218)] V centāra na zemjata temperaturata dostiga 7000 K.
\textit{In middle of Earth temperature reach.IMPERSG.PRES 7000 K}
\textit{‘In the middle of the Earth the temperature reaches 7000K.’}
\item[(219)] Scientific knowledge context: Your 5 year old niece asks you why there are different seasons, and times of the day. You try to explain her basic properties of the solar system:
\textit{Zemjata e krāgla, i se vārti okolo slāntseto.}
\textit{Earth be round and REFLEX rotate.IMPERSG.PRES around sun}
\textit{‘The earth is round and rotates around the sun, [I heard].’}
\end{itemize}

Second, not only is the indicative used when the speaker knows that \( p \) is true, as in (218) and (219), the usage of the indicative is infelicitous if this condition is not satisfied, i.e. if the speaker does not know that \( p \) is true, as (220) and (221) show.
(220) Context: you are crossing the desert. Suddenly you see a group of palms, surrounding a small pond. You’ve had similar visions the day before, but they all turned out to be false. Now you don’t know whether what you are seeing is a real pond or a mirage. Upon seeing this, you tell to people who are riding with you:

# Ima voda otpred.
have.IMPERF.3SG.PRES water in.front
‘There is water in front of us.’

(221) Context: You have little contact with your sister. You know that she has daughter Maria, but you don't know anything about the girl. Your sister often mentioned to you that if she has a daughter, her daughter would play a piano. When one of your colleagues asks you whether your niece plays any musical instrument, you say:

# Maria sviri na piano.
Maria play.IMPERF.3SG.PRES on piano
‘Maria plays the piano.’

In (220) the speaker is seeing water, but she does not know whether what she sees is a reality or a mirage, so the usage of the indicative is infelicitous. Similarly, in (221), the speaker has good grounds to believe that her niece plays the piano, but she does not know whether this is in fact the case, so the usage of the indicative is infelicitous. These examples show that knowledge is a necessary condition for the usage of the indicative.

The analysis of naturally occurring data confirms this observation. The internet examples show that if the indicative is not licensed – due to the lack of knowledge – the evidential form can be used if the relevant conditions for the evidential are met, i.e. there exists a contextually salient time at which the speaker acquired evidence for the proposition she reports. Court discourse presents a particularly sensitive context for the distribution of the indicative and the evidential forms. The analysis of the online data shows that when the evidence presented by the witnesses is discussed by the third party, the discussant obligatorily uses evidential forms. The usage of the indicative in such a context can lead to the accusation of being biased. Thus, in (222), the content of the
witness’s report is presented with the evidential verb forms, i.e. *podavala* ‘submit’, *vrăštali* ‘return’, and *podtvăždavali* ‘confirm’.

(222) Svidetelkata V.L. tvărdi, če raboti za XYZ witness V.L. claim.IMPERF.3SG.PRES that work.IMPERF.3SG.PRES for XYZ

[...]47 Vseki petăk tja podavala zajavka ot imeto na XYZ do K. every Friday she submit.IMPERF.PAST.3SG order from name of XYZ to K

Ot kooperacijata i vrăštali pismen otgovor from cooperation her return.IMPERF.PLE written reply

s kojto podtvăždavali zajavkata i proizvodstvenija grafik po dni. with which confirm.IMPERF.PLE order and production plan daily

‘Witness V.L. Claims that she works for “XYZ”. Every Friday she submits-EV order on behalf of XYZ to K. K returns-EV a written reply, which confirms-EV the order and the daily schedule.’

This discussion shows that by using the indicative verb forms the speakers indicate absolute certainty and commitment to the truth, and that knowledge on the part of the speaker is a necessary condition for the felicitous usage of the indicative.48

This analysis makes a specific prediction about the function of evidential sentences as opposed to indicative ones. Since the indicative is only felicitous when the speaker knows that *p* is true, the usage of evidential forms would consistently implicate weaker commitment on the part of the speaker by the maxim of Quantity. The contexts in which the evidential forms are used would be understood as the context in which the speaker does not know whether *p* is true. If the speaker knew that *p* is true, she would use the

47 Names of people and organizations are changed.

48 Here knowledge should be understood not as absolute knowledge, i.e. justified true belief, but as a knowledge state of the individual epistemic agent in the sense of Hintikka (1962). According to Hintikka, the state of affairs where the epistemic agent *c* knows (*K*) that *A*, where *K* is a propositional operator, can be represented as in (i):

(i) *K:A*: in all possible worlds compatible with what *c* knows, it is the case that *A* (from Hendricks and Symons 2009)
indicative.

This prediction meshes well with the analysis of the evidential operator presented in the previous chapter. Consider first the case of the inferential evidential sentences. According to the analysis in chapter 6, by using the evidential in inferential contexts, the speaker indicates that she believes that $p$ is true. The attitude expressed by the inferential evidential sentence, i.e. belief on the part of the speaker that $p$ is true, expresses a weaker degree of commitment than knowledge.\(^{49}\) In the literature on evidentials, the observation to this effect was made first by Izvorski, according to whom “inferences trigger the interpretation that the speaker comes to believe $p$, but on the basis of evidence insufficient to justify knowledge” (Izvorski 1997:225). Indeed, as the discussion in the previous chapter has shown, the usage of the evidential is infelicitous if the speaker knows that $p$ is true, even if other felicity conditions, such as report availability, are met.

The characterization of evidential as an expression of a weaker epistemic commitment is also compatible with the analysis of evidential forms in direct evidential context. Despite the fact that perceptual evidence is a highly reliable source of information, it does not automatically imply knowledge at the moment of perception (cf. Ginet 1975), as I discussed in section 6.2.

Finally, the usage of the evidential in a reportative context can also be characterized in terms of a weaker epistemic commitment on the part of the speaker. According to the analysis proposed in the previous chapter, in reportative contexts, the proposition in the

\(^{49}\) In philosophical literature, the question of why knowledge is more valuable than belief goes back to the discussion in Plato’s *Meno*. For Plato, knowledge is more valuable than true belief because the latter gives one more confidence and is more persistent over time. In the words of Duncan (2008), “knowledge, unlike mere true belief, gives one a confidence that is not easily lost, and it is this property that accounts for the distinctive value of knowledge over mere true belief.”
The scope of the evidential operator is evaluated with respect to the belief worlds of the original reporter, and not with respect to the speaker. Thus, in such contexts, the evidential does not communicate anything about the belief of the speaker. The choice of the evidential over the indicative form would imply the lack of commitment by the maxim of quantity. If the speaker uses the evidential in the context in (223), the listener would conjecture that the speaker cannot make a stronger statement, and, consequently, that she does not have knowledge for $p$.

(223) Context: Last week you ran into your former school friend Ivan, who told you that his partner Maria is now writing a book. At the class reunion several days later, you tell your friends about your meeting with Ivan. When someone asks you what Ivan told you about Maria, you say:

Maria pišela kniga.

‘Maria is writing a book, [I heard].’

In this respect, the usage of the evidential parallels the parenthetical usage of propositional attitude verbs, as discussed in Simons (2007).

(224) Simons (2007:1036) ex. (2a, d)

A: Why isn’t Louise coming to our meetings these days?
B: a. She’s left town.
b. Henry said that she’s left town.

When the answer to the question in (224) is embedded under the reportative verb say, as in (224b), it implies that the speaker is less certain in the truth of the proposition expressed by the embedded sentence as opposed to a non-embedded statement in (224a).

This discussion shows that while the indicative forms express information known by the speakers to be true, the evidential forms express weaker commitment on the part of the speaker that ranges from belief that $p$ is true, in the case of inferential and direct evidential sentences, to non-commitment in reportative evidential contexts. The relation

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between the indicative and the evidential paradigms in terms of what information they encode can be represented in Table 8.

<table>
<thead>
<tr>
<th>Information source</th>
<th>Knowledge</th>
<th>Commitment weaker than knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Indicative</td>
<td>Evidential (direct)</td>
</tr>
<tr>
<td>Indirect</td>
<td>Indicative</td>
<td>Evidential (reportative, inferential)</td>
</tr>
</tbody>
</table>

**TABLE 8: The indicative-evidential opposition in terms of the strength of epistemic commitment**

This discussion suggests that in Bulgarian the grammatical categories the indicative and the evidential are structured in a way that reflects not the opposition between information sources, e.g. first hand vs. non-first hand, as suggested by Aikhenvald (2004), but the strength of the speaker’s epistemic commitment towards the information she reports.
Part 2: 
Mood
CHAPTER 9: THE SUBJUNCTIVE PARADIGM

This chapter addresses the question about the status of the subjunctive mood in Bulgarian. The position that Bulgarian has the subjunctive mood, advocated in the work of non-Bulgarian scholars, e.g. Gołąb (1954), Maslov (1956), and recently assumed in the literature on control by e.g. Landau (2004), is rejected by the majority of traditional Bulgarian grammarians (Mladenov 1929, Teodorov-Balan 1947, Popov 1963, 1967, Minčeva 1968, Genadieva-Mutafčieva 1970). In this chapter, I defend the position that Bulgarian has the subjunctive mood. The chapter is structured as follows. Section 9.1 provides background on mood. I show that there is a construction in Bulgarian – its distinct morphological property is morpheme da – that has a number of properties characteristic of subjunctive forms in Romance languages. In section 9.2, I provide an overview of the literature on the status of da forms in Bulgarian grammar. In section 9.3, I show that embedded da forms in Bulgarian should be analyzed as subjunctive based on morphological properties, temporal properties, and the distributional pattern. Section 9.4 concludes the chapter with a summary of key points.

9.1 Grammatical mood: background

Grammatical mood is often characterized as a category that encodes a binary opposition between two forms, the indicative and the subjunctive, characterized in terms of morphological, syntactic, semantic and pragmatic properties (cf. Palmer 2001, Portner
2009 for an overview). The question of how exactly the meaning of the subjunctive, as well as the distribution of subjunctive and indicative forms, should be characterized, is a matter of an intense debate (cf. Portner 2003 for an overview), a point that I return to in chapter 12. Focusing on the morphological realization of mood for now, in Romance and Germanic languages, mood is morphologically marked on the verb. The difference between subjunctive and indicative morphology becomes apparent when we consider the form of the embedded verb in complements of propositional attitude verbs. Propositional attitude verbs are verbs that specify the relation between an epistemic agent and a proposition (cf. Frege 1892), such as know, want, regret, etc. Spanish examples in (1) and (2) differ with respect to what form appears in the complement of quiere ‘want’ and in the complement of sabe ‘know’. The embedded verb traiga ‘bring’ in (1), that occurs in the complement of ‘want’, has subjunctive morphology, while the embedded verb in (2), trajo ‘bring’, that appears in complement of ‘know’, bears indicative morphology.

(1) Spanish, adapted from Villalta (2008:503), ex. (112)
Victoria quiere que Sofía traiga una torta de chocolate.  
‘Victoria wants Sofía to bring a chocolate cake.’

(2) Spanish, adapted from Villalta (2008:505), (116)
Victoria sabe que Sofía trajo una torta de chocolate.  
‘Victoria knows that Sofía brought a chocolate cake.’

Similarly to Romance and Germanic languages, Bulgarian morphologically distinguishes complements that are selected by verbs such as iskam ‘want’ (3) from those selected by verbs such as znam ‘know’ (4). In the Bulgarian example in (3), with the matrix verb iskam ‘want’, the morpheme da appears immediately before the embedded verb živee
‘live’. In (4), with the matrix verb *znam* ‘know’, a different morpheme, *če*, appears in the position before the verb.

(3) Maria *iska* [da živee v Sofia].
Maria *want.*IMPREF.3SG.PRES SUBJ live.IMPREF.3SG.PRES in Sofia
‘Maria wants to live in Sofia.’

(4) Maria *znae*, [če živee v Sofia].
Maria *know.*IMPREF.3SG.PRES that live.IMPREF.3SG.PRES in Sofia
‘Maria knows that she lives in Sofia.’

In what follows, I argue that morphological differences between the complements of *iskam* ‘want’ and *znam* ‘know’ in (3) and (4) should be analyzed in terms of the subjunctive-indicative opposition, similarly to the Spanish examples in (1) and (2).

A literature review shows that the status of *če* complements as indicative is uncontroversial (cf. Genadieva-Mutafčieva 1970, Rudin 1986). *Če* is analyzed as an indicative complementizer, and verbal forms that appear in complements introduced by *če* belong to the indicative paradigm (cf. the discussion in chapter 3). The status of complements that contain *da* forms, i.e. the morpheme *da* plus a verb, is a subject of an intense debate in the literature (cf. Genadieva-Mutafčieva 1970). In the next section, I review the literature on Bulgarian that pertains to this question.

### 9.2 The status of *da* forms in the previous literature

A literature overview shows that there is no agreement among linguists on how *da* forms should be analyzed. Gołąb (1954) and Maslov (1959) argue that *da* forms should be analyzed as members of the subjunctive verbal paradigm. Gołąb (1954) argues that Bulgarian has an independent subjunctive paradigm, based on the structural position of *da*, and specifically, its dependent status with respect to the embedded verb (discussed in 185...
In his analysis, *da* is part of the subjunctive verbal paradigm, and not a subordinating conjunct, an approach advocated by traditional Bulgarian grammarians (cf. Genadieva-Mutafčieva 1970). Maslov (1956: 260, 287) argues that Bulgarian has the subjunctive mood based on similarities between contexts in which *da* forms appear in Bulgarian (e.g., in complements selected by volitional verbs such as *iskam* ‘want’ in (3)) and contexts in which subjunctive complements appear in other languages (cf. the Spanish example in (1)). Weigand (1907) argues that *da* forms in Bulgarian express subjunctive meaning, but he does not assume that there is an independent subjunctive paradigm. In the recent syntactic literature on control in Balkan languages, *da* complements in Bulgarian, as well as corresponding complements in other Balkan languages are analyzed as subjunctive (e.g. Landau 2004), even though the authors usually do not motivate this assumption.

The majority of Bulgarian linguists reject the idea that Bulgarian has the subjunctive mood. In traditional and descriptive Bulgarian grammars, *da* is analyzed as a conjunct, (Popov 1962, Genadieva-Mutafčieva 1970), and complements that contain *da* forms are often labeled as subordinate conjunctive clauses (Genadieva-Mutafčieva 1970) or “infinitive-like *da* clauses” (Scatton 1993:229). In what follows, I discuss arguments against the analysis of *da* forms as subjunctive and present counter-arguments.

One of the main arguments against the analyses of *da* forms as subjunctive is based on the fact that Bulgarian, unlike Romance languages or Greek (Householder et al. 1964), did not have subjunctive mood at an earlier diachronic stage (cf. Teodorov-Balan 1947, Popov 1963). Historically, *da* complements in Bulgarian replaced the infinitive (cf. 50 The status of the subjunctive in Modern Greek is not uncontroversial. Householder et al. (1964) argue

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50 The status of the subjunctive in Modern Greek is not uncontroversial. Householder et al. (1964) argue
Mladenov 1929, Gołąb 1954 on the history of *da* in Bulgarian, Minčeva 1968 on the history of *da* in South Slavic languages, Joseph 1983/2009 on the loss of the infinitive in Balkan languages). Such a historical argument is based on the assumption that the presence/absence of a grammatical category on an earlier stage guarantees that its status will not change on a later stage. There are numerous examples that contradict this assumption. The loss of the infinitive in Balkan languages (Joseph 1983) is one such case. Another striking example from the same area is the introduction of the category of evidentiality to Balkan languages, under Turkish influence (cf. Friedman 2004). Thus, the lack of a designated subjunctive paradigm in Old Bulgarian does not mean that the subjunctive paradigm could not have developed at a later diachronic stage.

The second argument against the analysis of *da* forms as subjunctive, presented in Genadieva-Mutafčieva (1970:205, 206), pertains to their meaning and distribution. In traditional Bulgarian grammars, it is assumed that the subjunctive mood is used to present non real events (*irrealis*), while the indicative mood is used to present real or factual events (*realis*). Genadieva-Mutafčieva argues that when *da* forms in Bulgarian occur in complements of perception verbs, such as *viždam* ‘see’, they refer to events that are real. Assuming that reference to real events is incompatible with the meaning of the subjunctive, Genadieva-Mutafčieva argues that *da* forms cannot be analyzed as 

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that Modern Greek does not have the subjunctive mood. Their argument is based on the fact that Modern Greek lacks an independent subjunctive paradigm: apart from the subjunctive particle *na*, there is no morphological marker that differentiates the indicative and the subjunctive paradigm in Greek. Another argument against the analysis of *na* complements as subjunctive in Modern Greek is a lack of continuity. Ancient Greek had the synthetic subjunctive, while in Modern Greek the subjunctive is expressed analytically (Joseph 1983).
subjunctive. The first problem with this argument is the assumption that complements of perception verbs such as viždam ‘see’ refer to real or factual events. In fact, events denoted by complements of perception verbs are not necessarily understood as actually occurring in the real world (cf. Barwise 1981 on non-veridical usage of perception verbs). Moreover, the analysis of mood in terms of realis/irrealis is generally rejected by the majority of semanticists nowadays (I discuss problems with the realis/irrealis approach to mood in chapter 13). Therefore, the fact that da forms occur in complements of perception verbs cannot be taken as an argument against the analysis of da forms as subjunctive.

The third argument is based on morphological similarities between verbal morphology in the da form and the form of the verb in indicative če complements (Mladenov 1929, Genadieva-Mutafčieva 1970). As the examples in (3) and (4) have shown, embedded verbs in complements of iskam ‘want’ and znam ‘know’ have identical inflectional morphology in Bulgarian, unlike, e.g., verbal forms in Romance (cf. (1) and (2)). This argument can be used to argue against the status of da forms as subjunctive only if we show that da is not part of the subjunctive paradigm. Genadieva-Mutafčieva (1970) does not present any convincing arguments to this effect. In section 9.3, I argue that da is part of the subjunctive verbal paradigm, an analysis also advocated by Gołąd (1954).

This discussion suggests that arguments against the analysis of da forms as subjunctive are not unproblematic. In what follows, I argue that da forms should be
analyzed as subjunctive. To drive the argument home, I compare the properties of *da* forms to that of subjunctive forms in other languages. Properties of the subjunctive mood cross-linguistically have been discussed by Givón (1994) in a study of mood in Romance languages and Bantu languages, Landau (2004), Palmer (2001) and Matthewson (2010b). However, there are no clearly articulated criteria that would help one decide whether particular forms belong to the subjunctive paradigm. Landau (2004) presents the most articulated criteria for what properties subjunctive complements should have cross-linguistically, and in what follows, I apply his criteria to Bulgarian.

### 9.3 Properties of *da* forms

According to Landau (2004), the following criteria help identify subjunctive complements cross-linguistically: (i) subjunctive complements should be morphologically distinct from indicative complements; (ii) there are constraints on the temporal interpretation of subjunctive complements as opposed to indicative complements; (iii) subjunctive and indicative complements appear in different semantic contexts and have different meanings. In section 9.3.1, I argue that *da* should be analyzed as a subjunctive morpheme, and that Bulgarian has an independent subjunctive paradigm (cf. Gołąb 1954). In section 9.3.2, I compare temporal properties of *da* forms to the indicative verb forms in *če* complements and show that there are constraints on what tenses are compatible with *da*. Section 9.3.3 shows that *da* forms and embedded indicative forms in *če* complements occur in different semantic environments, which
suggests that the two forms have distinct meaning.

9.3.1 Morphological status of da

In this section, I first present arguments for the analysis of da as part of the subjunctive morphology (section 9.3.1.1). I then discuss the analyses of da as a complementizer, and show why such analyses are problematic (section 9.3.1.2).

9.3.1.1 Da as part of subjunctive morphology

There are several arguments that suggest that da is part of the subjunctive verbal paradigm rather than an independent word.

First, note that da is obligatory in the standard Bulgarian in complements of, e.g., volitional verbs such as iskam ‘want’: it cannot be dropped (cf. (5) and (6)).

(5) Maria iska [da živee v Sofia].
   Maria want.IMPERF.3SG.PRES SUBJ live.IMPERF.3SG.PRES in Sofia
   ‘Maria wants to live in Sofia.’

(6) * Maria iska [Ø živee v Sofia].
   Maria want.IMPERF.3SG.PRES live.IMPERF.3SG.PRES in Sofia
   Intended: ‘Maria wants to live in Sofia.’

Second, da shows a morpho-syntactic dependency on the embedded verb: it usually

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51 Sobolev (2004) presents the data that show that in some Bulgarian dialects da can be dropped. The dialectal examples in (i) and (ii) are infelicitous in standard Bulgarian, and would require da in the place of Ø.

(i) South Bulgarian, adapted from Sobolev (2004), ex. (20a):
   Ne moga [Ø go kaža].
   not.can.1SG SUBJ 3SG.M.ACC.CL say.1SG
   ‘I cannot say that.’

(ii) Southwest Bulgarian, adapted from Sobolev 920040, ex. (19):
   Ne možeš [Ø se razbereš sos nea].
   not.can.2SG SUBJ REFL.ACC.CL understand.2SG with her
   ‘I cannot talk to/understand her.’
appears adjacent to the embedded verb, and no full-fledged lexical items, such as nouns or adjectives, can intervene between *da* and the verb. (7) shows that the subject *Ivan* cannot occur between *da* and the verb.

(7) Čuvam [da (#Ivan) pee Ivan].
    hear.IMPERF.1SG.PRES SUBJ Ivan sing.IMPERF.3SG.PRES Ivan
    ‘I hear that Ivan is singing.’

For comparison, the indicative complementizer *če* ‘that’ does not have to be adjacent to the embedded verb. In (8), for example, the complementizer *če* and the verb are separated by the subject *Ivan*, and the adverb *hubavo* ‘beautifully’.

(8) Čuvam [če (Ivan) hubavo (Ivan) pee (Ivan)].
    hear.IMPERF.1SG.PRES that (Ivan) beautifully (Ivan) sing.IMPERF.3SG.PRES (Ivan)
    ‘I hear that Ivan is singing beautifully.’

The only grammatical elements that can separate *da* from the embedded verb are reduced pronominal forms and negation, as (9) shows.

(9) Iskam [da ne mi go kazvaš].
    want.IMPERF.1SG.PRES NOT SUBJ me.DAT it.ACC say.IMPERF.2SG.PRES
    ‘I want you not to say this to me (again).’

The order of monosyllabic words in *da* complement in (9) is fixed. No other combination can yield a grammatical sentence, as the examples in (10) show.

(10) a. * Iskam [ne da mi go kazvaš].
    want.IMPERF.1SG.PRES NOT SUBJ me.DAT it.ACC say.IMPERF.2SG.PRES
    Intended: ‘I want you not to say this to me (again).’

b. * Iskam [ne mi da go kazvaš].
    want.IMPERF.1SG.PRES NOT me.DAT SUBJ it.ACC say.IMPERF.2SG.PRES
    Intended: ‘I want you not to say this to me (again).’
The data in (9) and (10) show that da exhibits a type of linear dependency with respect to other monosyllabic functional words.

Besides morpho-syntactic dependency, da shows a prosodic dependency on the embedded verb. Joseph (1981), in his discussion of the status of the subjunctive marker na in Greek, observes that na cannot bear independent stress, and forms one phonological unit with the verb. Joseph’s observation can be applied to Bulgarian. The morpheme da cannot be stressed, and is perceived as one prosodic unit with the embedded verb. This type of prosodic dependency on other lexical material, observed in the case of da, is atypical for independent words.

To summarize, the morpheme da shows the following properties: (i) it is morpho-syntactically dependent on the embedded verb; (ii) its ordering with respect to other monosyllabic words is a subject to “template restrictions” (from Zwicky 1995), and (iii) Properties of subjunctive complements in Greek are similar to those in Bulgarian. First, the verb inside the complement has the same morphological form as the indicative verb form, and is inflected for tense, aspect, and number (cf. the subjunctive zi ‘live’ in (i) and the indicative zi ‘live’ in (ii)). Second, there is a special morpheme, na, that appears in the subjunctive complement and is considered to be a marker of the subjunctive mood (cf. Giannakidou 1998, 2009, 2010).

(i) Greek subjunctive:

O Janis theli [na zi stin Italia].
DET Janis want.IMPERF.3SG.PRES SUBJ live.IMPERF.3SG.NPAST in Italy
‘John wants to live in Italy.’

(ii) Greek indicative:

O Janis mas ipe [oti zi stin Italia].
DET Janis us say.PERF.3SG.PAST that live.IMPERF.3SG.NPAST in Italy
‘John said that he lives in Italy.’

Greek is different from Bulgarian in that negation in Greek is expressed by two different words, mi and dhen. Philippaki-Warburton and Veludis (1984) among others have argued that the negation can be used as an indicator of mood.
it forms one prosodic unit with the embedded verb.

The type of morpho-syntactic and prosodic dependency shown by *da* is characteristic of “clitics” or “particles”, i.e. elements that “are ‘dependent’ in some way or other on adjacent words” (Zwicky 1995:xii). There are some conceptual reasons against applying such terminology to Bulgarian *da*. As Zwicky (1995) points out, “clitic” is an “umbrella term”, i.e. it does not reveal much about syntactic, or morphological properties of a particular lexeme. Thus, instead of labeling *da* as a clitic or a “particle”, I suggest that it should be characterized as a bound functional morpheme and part of the verbal subjunctive paradigm (cf. Gołąb 1954 for the same analysis). The reader might object that *da* is crucially different from other inflectional functional morphemes such as tense and aspect, which form one morphological unit with the verb. However, the fact that *da* is spelled out separately from the verb might be due to historical reasons, and specifically to transition of Bulgarian from a synthetic to an analytic system (cf. Genadieva-Mutafchieva 1970:16).

The analysis of *da* as a bound morpheme is similar in spirit to Rudin (1986), who analyzes *da* as an auxiliary, and Rivero (1994), who analyzes *da* as a mood particle and not a complementizer.54 However, the current analysis is different from, e.g. Rivero

53 A similar process occurred in the nominal domain. In an earlier diachronic stage, Bulgarian had cases, i.e. inflectional morphemes that were part of noun morphology. Since Bulgarian has lost case morphology, information previously expressed by the case system is now expressed by prepositions, i.e. morphemes that are not part of nominal morphology.

54 The syntactic position of *da* has been a subject of an intense debate. In the previous literature *da* is classified as (i) a complementizer (Penchev 1998, Krapova 1999), (ii) a mood particle, i.e. a head of the Mood P (Krapova 2001, Rivero 1994:68, 2005:1085), (iii) an auxiliary (Rudin 1986). Some authors also maintain the position that *da* is ambiguous and can be both a modal particle and a conjunct (Genadieva-Mutafchieva 1970). Similar controversy surrounds the status of the Greek particle *na* that introduces subjunctive complements. *Na* is analyzed as a complementizer by Agouraki (1991),
(1994) and Rivero (2005), in that it recognizes that morpho-syntactically, *da* forms a unit with the embedded verb. Such a dependency motivates the analysis in which *da* is part of the verbal subjunctive paradigm, as was originally proposed by Gołąb (1954). The indicative and the subjunctive paradigm for the verb *piša* ‘write’ in the present tense are presented in Table 9.

<table>
<thead>
<tr>
<th>Indicative</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>piša write.IMPERF.1SG.PRES</td>
<td>da piša SUBJ write.IMPERF.1SG.PRES</td>
</tr>
<tr>
<td>piše write.IMPERF.2SG.PRES</td>
<td>da piše SUBJ write.IMPERF.2SG.PRES</td>
</tr>
<tr>
<td>pišeš write.IMPERF.3SG.PRES</td>
<td>da pišeš SUBJ write.IMPERF.3SG.PRES</td>
</tr>
<tr>
<td>pišem write.IMPERF.1PL.PRES</td>
<td>da pišem SUBJ write.IMPERF.1PL.PRES</td>
</tr>
<tr>
<td>pišete write.IMPERF.2PL.PRES</td>
<td>da pišete SUBJ write.IMPERF.2PL.PRES</td>
</tr>
<tr>
<td>pišat write.IMPERF.3PL.PRES</td>
<td>da pišat SUBJ write.IMPERF.3PL.PRES</td>
</tr>
</tbody>
</table>

**TABLE 9: The indicative and the subjunctive paradigm**

On a language-internal basis, the analysis of *da* as part of the verbal subjunctive paradigm argues that the grammar of Bulgarian, in addition to the indicative-evidential

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opposition, morphologically encodes the indicative-subjunctive opposition. While the evidential and the subjunctive paradigms appear to express different types of meaning, I show in chapter 12 that similar to the evidential construction, the subjunctive mood has an epistemic modal component, and allows the speakers to express the strength of epistemic commitment.

From a cross-linguistic perspective, the analysis of da advocated here implicates that Bulgarian has a designated morphological paradigm for the subjunctive mood, similar to that found in Romance languages.

In the next section I discuss an alternative analysis of da, in which da is analyzed as a complementizer, and show why such an analysis cannot be maintained.

9.3.1.2 Da is not a complementizer

Authors who assume that Bulgarian has subjunctive mood often assume that Bulgarian lacks subjunctive verbal morphology (e.g. Krapova 1999, 2001 on Bulgarian, Landau 2004 on Balkan languages in general). According to Landau, “the entire family of Balkan languages grammaticalizes the subjunctive mood without any designated verbal paradigm. Instead, a monosyllabic marker is used to identify that mood” (Landau 2004:819). A similar position is advocated in Krapova (1999), who observes that “like

55 Landau’s generalization is not entirely accurate. It holds only for some languages members of the Balkan Sprachbund, such as Macedonian (cf. Friedman 1977:15), Serbo-Croatian (cf. Zec 1989), Greek (cf. Giannakidou 1998, 2008) and Bulgarian (cf. Krapova 1999, 2001, Smirnova 2008). However, languages such as Albanian and Romanian have special subjunctive morphology realized on the verb. In Albanian, subjunctive verb forms have morphologically distinct forms in the 2nd and the 3rd person singular (cf. Newmark et al. 1982). Moreover, many verbs use different stems for the indicative and the subjunctive. Similarly, in Romanian, the subjunctive paradigm has distinct forms for the 3rd person singular and the 3rd person plural (see Farkas 1985:57).
the rest of the Balkan languages (Modern Greek, Romanian, Albanian) Bulgarian lacks subjunctive morphology but features a specific type of complementation with a subjunctive-like interpretation” (Krapova 1999:239). In what follows, I examine arguments for the analysis of *da* as a complementizer, and show that these arguments are problematic.

The position that *da* is a complementizer is advocated by Penchev (1998) and Krapova (1999). Even though in her later work Krapova forgoes the analysis of *da* as a complementizer, and treats it as a modal particle (Krapova 2001), it is worth reviewing her earlier arguments to illustrate what motivates the complementizer analysis in the first place. Penchev (1998) and Krapova (1999) present two types of arguments for the analysis of *da* as a complementizer. First, *da* occurs in the same surface syntactic position as other complementizers do, such as the indicative complementizer *če* and the conditional marker *ako* ‘if’, thus “suggesting that the two elements belong to the same functional domain” (Krapova 1999: 252). The data in (11) and (12) support this argument. The examples in (11) show that both the indicative complementizer *če* and *da* appear in the same structural position within the sentence, i.e. after the verb in the main clause, and immediately before the embedded verb.

(11) a. Maria sǎžaljava, [če živee v Sofia].
Maria regret.IMPERF.3SG.PRES that live.IMPERF.3SG.PRES in Sofia
‘Maria regrets that she lives in Sofia.’

b. Maria mečtæ [da živee v Sofia].
Maria dream.IMPERF.3SG.PRES SUBJ live.IMPERF.3SG.PRES in Sofia
‘Maria dreams that she lives in Sofia.’
Similarly, in (12), both the conditional marker *ako* ‘if’ and *da*, which introduce the antecedent clause of the conditional, appear in sentence initial position immediately before the verb.

(12) a. Ako živeeše nablizo,
    If live.IMPERF.3SG.PAST closer,
    štjahme da se viždame po-često.
    would SUBJ REFL see.IMPERF.1PL.PRES oftener
    ‘If (s)he lived closer, we would see each other more often.’

b. Da živeeše nablizo,
    SUBJ live.IMPERF.3SG.PAST closer,
    štjahme da se viždame po-često.
    would SUBJ REFL see.IMPERF.1PL.PRES oftener
    ‘If (s)he lived closer, we would see each other more often.’

The second type of evidence for the analysis of *da* as a complementizer comes from the distributional pattern of *da*, and specifically from its incompatibility with other complementizers. The example in (13) shows that *da* does not co-occur with other complementizers, such as *če*.

(13) # Čuvam [če da pee Ivan].
    hear.IMPERF.1SG.PRES that SUBJ sing.IMPERF.3SG.PRES Ivan
    Intended: ‘I hear that Ivan is singing.’

According to Krapova (1999), this fact indicates that the two words compete for the same syntactic position.

A closer look at the arguments for the analysis of *da* as a complementizer reveals that they are not unproblematic. First, the structural similarity between complements introduced by *da* and those introduced by other complementizers is superficial. Rudin
(1986) shows that in constructions with a focused subject, the indicative complement favors a complementizer-subject-verb word order, as in (14a). However, such a word order is infelicitous in constructions with *da* forms, as (14b) shows. Moreover, this observation cannot be maintained in light of the data in (7) and (8), discussed above.

(14) Rudin (1986: 4), ex. (2)\(^{56}\)
   a. Kazvat, [če DECATA pejat].
      say.IMPERF.1PL.PRES that children sing.IMPERF.3PL.PRES
      ‘They say that CHILDREN are singing.’
   b. # Iskam [da DECATA pejat].
      want.IMPERF.1SG.PRES SUBJ children sing. IMPERF.3PL.PRES
      Intended: ‘I want children to sing.’

For the subjunctive complement to be felicitous, the focused subject must precede the purported complementizer *da*, as shown in (15), so that *da* is adjacent to the embedded verb (cf. (7)).\(^{57}\)

(15) Iskam [DECATA da pejat].
    want.IMPERF.1SG.PRES children SUBJ sing. IMPERF.3PL.PRES
    ‘I want CHILDREN to sing.’

\(^{56}\) Glosses differ from the original.

\(^{57}\) Rudin (1986) observes that the data in (14) can have an alternative explanation. For example, one might argue that the focused noun phrase *decata* ‘children’ in (13) is raised from the subject position in the embedded clause to the object position in the main clause. Under such a raising analysis, there would be no structural difference between the indicative and the subjunctive complements in (14a) and (14b), and both *da* and *če* would appear in the complementizer position. A reliable diagnosis to decide whether the raising took place or not, would be the case marking. Since Bulgarian has lost grammatical cases, except for in short pronominal forms, only pronominal subjects provide the relevant data that can help identify the syntactic status of the noun phrase *decata* ‘children’. Rudin (1986) argues against the raising analysis of (13) based on the data in (i). In (i), with the pronominal form of the subject, only the nominative case pronoun *te* ‘they’ is felicitous. The infelicity of the accusative pronoun *gi* ‘them’ shows that structurally, the pronominal element appears in the subject position of the embedded clause. Rudin argues that the same syntactic analysis can be extended to the case-less form *decata* ‘children’ in (14).

(i) From Rudin (1986:4), ex. (3)
    Iskam [te /#gi da pejat].
    want.IMPERF.1SG.PRES they.NOM / they.ACC SUBJ sing. IMPERF.3PL.PRES
    ‘I want that they sing.’

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Similarly, a closer look shows that the distribution of da and ako is not as parallel as the data in (12) suggest. In conditional sentences introduced by ako ‘if’, the order of the antecedent and the consequent can be reversed, as (16a) shows. However, in conditional sentences introduced by da, the consequent cannot precede the antecedent, as the infelicity of (16b) shows.

(16) a. Štjahme da se viždame po-često,
    would SUBJ REFL see.IMPERF.1PL.PRES oftener
    ako živeeše nablizo.
    if live.IMPERF.3SG.PAST closer.
    ‘We would see each other more often if (s)he lived closer.’

b. # Štjahme da se viždame po-često,
    would SUBJ REFL see.IMPERF.1PL.PRES oftener,
    da živeeše nablizo.
    SUBJ live.IMPERF.3SG.PAST closer.
    ‘We would see each other more often if (s)he lived closer.’

The infelicity of (16b) compared to (16a) suggests that da cannot occur in the syntactic position available for ako ‘if’. The difference is unexplained under the assumption that both elements have the same syntactic status and occupy the same structural position.

The data in (14) – (16) suggest that the distribution of da is different from the indicative complementizer če and the conditional marker ako, both of which are considered to be syntactic heads of the complementizer phrase (CP).

With respect to the argument based on the non-compatibility of da and če, as shown in (13), this phenomenon can receive an alternative explanation. Giannakidou (2009) argues for Greek that the non-compatibility of the subjunctive marker na and the
indicative complementizer *oti* ‘that’ can be explained on semantic grounds. I advocate the same position for Bulgarian. The analysis of *da* and *če* presented in chapter 13 suggests that the incompatibility of *da* and *če* is due not to the fact that they compete for the same position in the structure, namely a head of the CP projection, as suggested by Krapova (1989), but to their semantic properties.

In the next section, I continue the discussion of the status of *da* forms with an overview of their temporal and aspectual characteristics.

### 9.3.2 Temporal and aspectual properties of *da* forms

In this section, I discuss temporal and aspectual properties of *da* forms and compare them to indicative verbal forms in *če* complements. Landau (2004) points out that “tense restrictions are a hallmark of subjunctive complements” (Landau 2004:820). The discussion below shows that *da* forms have unique aspectual and temporal properties. Even though the temporal properties of *da* forms in Bulgarian are different from temporal properties of subjunctive verbal forms in Romance, temporal restrictions observed for *da* forms nevertheless provide additional evidence for their subjunctive status.

#### 9.3.2.1 Aspectual properties of *da* forms

The main aspectual difference between *da* forms and the indicative verb forms concerns the compatibility of perfective aspect with the present tense morphology. As the discussion in part 1 has shown, the imperfective aspect/present tense combination yields
felicitous sentences. On the other hand, perfective present tense forms are infelicitous in main clauses in Bulgarian (cf. (17a) and (17b)).

(17) a. # Na-piša kniga.  
    PERF-write.1SG.PRES book  

    b. piša kniga.  
    write.IMPERF.1SG.PRES book  
    ‘I’m writing a book.’

The same constraint on the compatibility of the perfective aspect with the present tense applies to indicative verbal forms in če complements, as in (18).

(18) a. # Kazah [če na-piša kniga].  
    say.PERF.1SG.PAST that PERF-write.1SG.PRES book  
    Intended: ‘I said that I will write a book.’

    b. Kazah [če piša kniga].  
    say.PERF.1SG.PAST that write.IMPERF.1SG.PRES book  
    ‘I said that I’m writing a book.’

On the other hand, both the perfective present tense form, as well as the imperfective present tense forms are felicitous in the scope of da, as (19) shows.

(19) a. Iskah [da na-piša kniga].  
    want.IMPERF.1SG.PAST SUBJ PERF-write.1SG.PRES book  
    ‘I wanted to write a book.’

    b. Iskah [da piša kniga].  
    want.IMPERF.1SG.PAST SUBJ write.IMPERF.1SG.PRES book  
    ‘I wanted to write a book.’

Giannakidou (2009) analyzes the same phenomenon in Greek and proposes that perfective non-past forms require a temporal parameter, an evaluation time, which cannot be supplied in main clauses. Therefore, the perfective non-past form in Greek is
uninterpretable in the main clause. In subjunctive complement clauses, the subjunctive marker *na* supplies the needed evaluation time. Hence, the perfective non-past form is felicitous in main clauses. While the temporal properties of subjunctive complements are not of primary concern here, it seems that the Bulgarian pattern can be explained along the lines of Giannakidou’s analysis but with slight modifications. As I show in Smirnova (2008), tense and aspect in embedded complements with *da* forms are relative, i.e. they are interpreted with respect to the temporal parameter provided by the matrix clause verb. Thus, it is possible that in Bulgarian, unlike Greek, the relevant evaluation time is supplied not by the subjunctive marker, but by the embedding verb. This hypothesis can be tested by a study that compares the meaning of tenses in Bulgarian and Greek in both indicative and subjunctive complements.

9.3.2.2 Temporal properties of *da* forms

*Da* forms differ from indicative verb forms with respect to their temporal properties. First, there are restrictions on what tenses are compatible with *da*: only present and present perfect tenses are felicitous in the scope of *da*. The example in (20) shows that the simple past (aorist) form *kupih* ‘bought’, the imperfect past form *kupeh*, and the past perfect form *bjah kupila* ‘had bought’ are all incompatible with *da*.

(20) Iskah [da kupja/
want.IMPERF.1SG.PAST SUBJ buy.IMPERF.1SG.PRES
# kupih /# kupih /# bjah kupila knigata].
buy.1SG.PAST / buy.1SG.PAST / be.1SG.PAST buy.IMPERF.PAST.PLE book
‘I wanted to buy a book.’
No such restrictions are observed in indicative če complements, as (21) shows.

(21) Kazah [če say.IMPERF.1SG.PAST that kupeh / kupih / bjah kupila knigata].
buy.1SG.PAST / buy.1SG.PAST / be.1SG.PAST buy.IMPERF-PAST.PLE book
‘I said that I bought/have bought a book.’

The difference between the indicative and the subjunctive verb forms in terms of tense morphology is summarized in Table 10.58

<table>
<thead>
<tr>
<th></th>
<th>Indicative</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESENT</td>
<td>piša write.IMPERF ‘I write’</td>
<td>da piša SUBJ write.IMPERF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAST (AORIST)</td>
<td>pisah write.IMPERF ‘I wrote’</td>
<td># da pisah SUBJ write.IMPERF.1SG.PRES</td>
</tr>
<tr>
<td>IMPERF</td>
<td>pišeh write.IMPERF ‘I was writing’</td>
<td># da pišeh SUBJ write.IMPERF.1SG.PRES</td>
</tr>
<tr>
<td>FUTURE</td>
<td>šte piša write.IMPERF ‘I will write’</td>
<td># šte da piša FUT SUBJ write.IMPERF.1PL.PRES</td>
</tr>
<tr>
<td>PRESENT PERFECT</td>
<td>sām pisal be.1SG.PRES write.IMPERF.PLE ‘I have written’</td>
<td>da sām pisal SUBJ be.1SG.PRES write.IMPERF.PLE</td>
</tr>
<tr>
<td>PAST PERFECT</td>
<td>bjah pisal be.1SG.PAST write.IMPERF.PLE ‘I had written’</td>
<td>da bjah pisal SUBJ be.1SG.PAST write.IMPERF.PLE</td>
</tr>
</tbody>
</table>

TABLE 10: Tense in the subjunctive and the indicative

58 In antecedents of counterfactual conditionals da is compatible with the imperfect past tense form (cf. 12b), as well as with the past perfect forms. However, the past tense cannot occur in da forms in complements of propositional attitude verbs, the semantic environment of primary interest here.
The second difference between *da* forms and forms in indicative complements pertains to the temporal reference. Despite the fact that past and future tense morphology are not compatible with *da*, *da* forms in Bulgarian can nevertheless refer to past, present or future events, as the examples below show. In (22), the event of singing is located in the future with respect to ST, and in (23), the event of singing is located in the past with respect to ST. In both cases, the embedded verb *pee* ‘sing’ bears present tense morphology.

(22) Karvam                       go        [da pee utre           /# včera].
    urge IMPRF.1SG.PRES he.ACC SUBJ sing IMPRF.3SG.PRES tomorrow/ yesterday
    ‘I am urging him to sing tomorrow/yesterday.’

(23) Spomnjam                          si      go
    remember. IMPRF.1SG.PRES REFL he.ACC
    [da pee # utre           / včera].
    SUBJ sing. IMPRF.3SG.PRES tomorrow / yesterday
    ‘I remember him singing #tomorrow/yesterday.’

Neither the indicative verb forms in main clauses nor the indicative verb forms in če complements show such a temporal flexibility, i.e. the ability to refer to the past and future depending on the embedding verb. As the examples in (24) and (25) show, the present tense form *pee* ‘sing’ is incompatible with past and present temporal adverbials *utre* ‘tomorrow’ and *včera* ‘yesterday’, respectively. Thus, in these sentences *pee* ‘sing’ can only have a present time reference.59

59 The combination of the present tense verb with a future adverb is felicitous in the contexts that discuss scheduled events. For example, the sentence in (24) with the future temporal adverb *utre* ‘tomorrow’ can be used as an answer to the question about the schedule of a professional singer, whose performance has been advertised in advance. This sentence, however, cannot answer the question about someone’s future plans.
This raises the question of how the unusual temporal reference that the present tense has in *da* construction, i.e. the ability of the present tense forms to refer to past and future events should be explained. In Smirnova (2008), I showed that in Bulgarian, the present tense has the same temporal reference in matrix clauses and in *da* constructions. I have argued that the unusual temporal reference of the present tense in *da* constructions is due to the effect of the semantics of the main verb on the temporal location of the event denoted by the complement.

The discussion in this section shows that *da* constructions have unique temporal and aspectual properties compared to indicative verbal forms. In the next section, I compare the restriction on what tenses can occur in the scope of *da* to the temporal restrictions shown by subjunctive verbal forms in Romance languages.

### 9.3.2.3 A cross-linguistic perspective on tense restriction in the subjunctive

While it is generally assumed that tense restrictions shown by the Balkan subjunctive are the same as the ones observed in the Romance subjunctive, the discussion below shows that the pattern of temporal distribution is not the same in these languages.

The observation about the restriction on tenses in subjunctive complements goes back to Picallo’s (1984) work on Catalan. Picallo observes that certain tense sequences
are not possible in Catalan. For example, with the present tense matrix verb neither the past tense, nor the pluperfect can occur in Catalan (26a). The present tense form and the present perfect are felicitous in complements of present tense verbs. On the other hand, with the past tense matrix verb, both the simple past and the pluperfect are felicitous, but the present tense is ruled out (26b).

(26) Catalan, from Picallo (1984:87), ex. (45)&(46); glosses are from Quer (1998:7, ex.(3)&(4)

a. Desitja que {porti / hagi portat/
desire.PRES.3SG that bring.SBJ.PRES / PRF
* portés / * hagués portat} un llibre.
* PST / * PLPRF.3SG a book
‘S/he desires that s/he brings/has brought/*brought/*had brought (SUBJ)
a book.’
b. Desitjá que {* porti /*hagi portat/
desire.PST.3SG that * bring.SBJ.PRES / * PRF
portés/hagués portat} un llibre.
PST /PLPRF.3SG a book
‘S/he desired that s/he *brings/*has brought/brought/had brought (SUBJ)
a book.’

The temporal dependency observed by Picallo (1984) (see also Comrie 1985) can be represented as in (27).

(27) Sequence of tense in Spanish subjunctive complements

a. [ Matrix clause present [{ Subjunctive clause present / # past }]
b. [Matrix clause past [{ Subjunctive clause past /# present }]

The subsequent literature challenged Picallo’s (1984) and Comrie’s (1985) generalizations. Suner & Padilla-Rivera (1987) present data that show that sequences that are predicted to be ill-formed by Picallo, are in fact attested.60 Thus, in (28), the past

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60 Suner & Padilla-Rivera (1987) argue that the constraints on tense distribution are due to the semantics of the matrix verbs, and not to the syntactic dependency between the matrix tense node and the subjunctive tense node, as assumed in Picallo (1984).
tense occurs in the complement of the present tense verb, while in (28b), the present tense is selected by a past tense verb in Spanish.

(28) Spanish, adapted from Suner & Padilla-Rivera 1987, ex. (23a) & (25a)
   a. [present, past]
      Niega que sus subalternos aceptaran sobornos.
      ‘He denies that his staff accepted bribes.’
   b. [past; present]
      Negó que sus subalternos acepten sobornos.
      ‘He denied that his staff accepts bribes.’

The generalization in (27) has also been challenged by data from Catalan, presented in Quer (1998). Quer argues that the past-present sequence is in fact felicitous if the context is made right. According to Quer, the example in (29) is acceptable in the context where someone has expressed the desire for the speaker to finish his dissertation, and at the time of the utterance of (29), the speaker is finishing his dissertation at MIT.

(29) Catalan, from Quer (1998:34), ex. (2b)
   [*] Volia que acabi la tesi a l’MIT.
   want.PST.3SG that finish.SBJ.PRS.1SG the dissertation at-the MIT.
   ‘S/he wanted that I finished the dissertation at MIT.’

Quer also shows that the present-past sequence is infelicitous only in a limited number of contexts, specifically, when subjunctive complements are selected by strong intensional verbs such as the volitional verb want in (30). He shows that this restriction does not apply in the cases when the subjunctive is licensed by negation, as in (31).

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61 The terminology ‘strong intensional verbs’ is due to Farkas (1992). For her, propositional attitude verbs that involve quantification over possible worlds (instead of one world, which is the case with know in her analysis) are strong intensional verbs.
Despite the empirical problems with the assumption that tense in subjunctive complement is anaphoric on the properties of the matrix tense, Picallo’s (1985) observation about the defective nature of the subjunctive tense is still widely maintained in the linguistic literature (cf. Krapova 2001 on Bulgarian, Watanabe 1993 on Greek). Moreover, it is often assumed that subjunctive complements in Balkan languages show the same restriction on tense as subjunctive complements in Romance languages (cf. Watanabe 1993, Progovac 1993). This generalization is misleading. The main difference between the Balkan and the Romance subjunctive is that the restriction on what tense can appear in subjunctive complements in Romance languages, if any, is best characterized in terms of the constraints on the tense sequence. Thus, while present tense matrix verbs in Spanish seem to favor the present tense on the embedded verb, the past tense is still felicitous in subjunctive complements (26b). The restrictions on what tenses are compatible with da in Bulgarian, on the other hand, have nothing to do with tense sequencing. Thus, in Bulgarian, the past tense is ill-formed in da forms, irrespective of what the tense on the main verb is, as the examples in (32) show.
Unlike Spanish, in Bulgarian the acceptability of the past tense in the complement does not improve if the tense of the matrix verb is past (cf. the Spanish example in (26b) and the Bulgarian example in (32b)). Moreover, while the acceptability of the past tense in Romance seems to be dependent on the type of the matrix verb (cf. the difference in the distribution of tense in the complement of ‘want’ in (26) and ‘remember’ in (31)), in Bulgarian, the past tense is infelicitous irrespective of the semantic type of the verb in the main clause (cf. the examples with iskam ‘want’ in (32a) and spominjam si ‘remember’ in (33)).

Examples from other Balkan languages, such as Greek and Albanian, provide additional evidence that the tense distribution in subjunctive complements in these languages does not depend on the value of the matrix tense. The examples in (34) show that sentences

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62 Since in Bulgarian past tense cannot appear in subjunctive complements, it might seem that the language disallows the present-past tense sequence.
with a past tense matrix verb and a present tense embedded verb are acceptable in both Albanian and Greek.

(34) [past; present]
   a. Greek:
      Xtes ksexasa [na agorašo ta vivlia].
      ‘Yesterday I forgot to buy the books.’
   b. Albanian:
      Shpreso-ja [të këndoj në Paris në 2012].
      ‘I hoped to sing in Paris in 2012.’

The examples in (35) show that both Greek and Albanian allow constructions with a present tense matrix verb and a past tense verb in the complement.

(35) [present; past]
   a. Greek:
      elpizo [na ejine jatros o Nikos].
      ‘I hope that Nick became a doctor.’
   b. Albanian:
      Më kujtohe-t ai [të këndo-nte vjet].
      ‘I remember him singing last year.’

These data show that the tense restrictions observed in subjunctive vis-à-vis indicative complements in Bulgarian cannot be explained in terms of the sequence of tense constraints. In light of this observation, it seems that the pattern of tense distribution in Bulgarian and other Balkan languages should receive an alternative explanation. One possible approach is to explain this phenomenon through the incompatibility of *da* with the meaning of certain tenses. Friedman (1977) observes that the simple past tense
cannot be used in Bulgarian if the speaker is not committed to the truth of the proposition $p$ expressed by the sentence. He shows that the simple past tense does not appear in complement of negated epistemic verbs such as *ne vjarvam* ‘not believe’, as (36) shows.

(36) Bulgarian, from Friedman (1981:14), ex. (5)

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# Ne vjarvam če toj dojde.
NOT believe.IMPERF.1SG.PRES that he arrive.IMPERF.3SG.PAST
‘I don’t believe that he came.’
Meaning: I don’t accept as factual an assertion that he came.
```

If the past tense carries a presupposition that the eventuality is true, as far as the attitude holder is concerned, and the subjunctive is incompatible with contexts that convey the commitment to truth/falsity on the part of the attitude holder, then we predict that the past tense would not be able to appear in subjunctive complements. The analysis of the subjunctive mood presented in chapter 12 allows for such an explanation.

To summarize, in this section I have shown that indicative verb forms and *da* forms show different tense restrictions. In the next section, I show that *da* forms appear in different semantic environments compared to the indicative verb forms. Most importantly, the distribution of *da* forms parallels the distribution of subjunctive complements in other languages, which supports the analysis of *da* forms as subjunctive.

### 9.3.3 The distribution of *da* forms: semantic environment

Even though different languages show variation in the distribution of subjunctive and indicative complements, the core distributional patterns are the same cross-linguistically (cf. Giorgi and Pianesi 1997 on Romance and Germanic, Giannakidou 2009 on Greek, 211
Quer 1998 on Romance, Siegel 2004 on the subjunctive in Romance and Balkan languages). Thus, volitional verbs such as ‘want’ and directive verbs such as ‘order’, cross-linguistically select the subjunctive, as the data in (37) and (38) show.

(37) Subjunctive in complements of volitional verbs
      Paolo vuole che tu venga
      ‘Paolo wants that you come (SUBJ).’
      Ich wollte, du wärest hier
      ‘I wanted you were (SUBJ) here.’

(38) Subjunctive mood in complements of directive verbs
   Catalan, from Quer (1998:43), ex. (15)
   Fas que marxi abans d’hora.
   ‘You make her/him leave earlier.’

On the other hand, factive verbs such as ‘know’, emotive factive verbs such as ‘be glad’, positive epistemic verbs such as ‘believe’, as well as reportative verbs such as ‘say’, cross-linguistically select the indicative.

(39) Indicative mood in complements of factive verbs
   a. Italian, adapted from Giorgi& Pianesi (1997:198), ex. (13)
      Gianni sa che Paolo ha/*abba scritto una lettera.
      Gianni knows that Paolo has (IND)/*(SUBJ) writtent a letter
   b. German, adapted from Giorgi& Pianesi (1997:198), ex. (13)
      Hans weißt daß Paul einen Brief geschrieben hat/*habe
      Hans knows that Paul the letter written has (IND)/*(SUBJ)

(40) Spanish, from Villalta (2008:470), ex. (7)
   Marcela se alegra de que la hayan invitado
   ‘Marcela is glad that they have invited her.’
Indicative in complements of reportative verbs

a. Italian, from Giorgi and Pianesi (1997: 199), ex. (17a)
   Gianni ha detto che Mario ha /* abbia scritto la lettera.
   Gianni said that Mario has (IND)/(SUBJ) written the letter.

b. French, from Giorgi and Pianesi (1997: 199), ex. (17b)
   Jean a dit que Marie a /* ait ecrit une lettre.
   Jean said that Marie has (IND)/(SUBJ) written a letter.

The data below show that Bulgarian da forms occur in the same semantic environment as subjunctive forms in other languages do. The examples in (42) and (43) show that volitional verbs, such as iskam ‘want’ and directive predicates such as karam ‘urge’ select da construction only and are incompatible with indicative complementizer če.

(42) Subjunctive in complements of volitional verbs
   Maria iska [da /# če uči].
   Maria want.IMP.3SG.PRES SUBJ that study.IMP.3SG.PRES
   ‘Maria wants to study.’

(43) Subjunctive in complements of directive verbs
   Ivan kara Maria [da /# če tantsuva].
   Ivan urge.IMP.3SG.PRES Maria SUBJ that dance.IMP.3SG.PRES
   ‘Ivan urges Maria to dance.’

Moreover, similarly to Romance and Germanic languages, in Bulgarian the indicative forms can only occur in complements of factive verbs such as znam ‘know’, emotive factive verbs such as strahuvam se ‘be afraid’, non-factive epistemic verbs such as vjarvam ‘believe’, as well as reportative verbs such as kazvam ‘tell’ and oplakvam se ‘complain’.

(44) Indicative in complements of factive verbs
   Ivan znae [če Maria /# da Maria piše pismoto].
   Ivan know.3SG.PRES that Maria / SUBJ Maria write.IMP.3SG.PRES letter
   ‘Ivan knows that Maria is writing a letter.’

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(45) Indicative in complements of emotive factive verbs
Maria revnuva [če Anna e krasiva / Maria be.jealous.3SG.PAST that Anna be.3SG.PRES beautiful # Anna da e krasiva].
Anna SUBJ be.3SG.PRES beautiful
‘Maria is jealous that Anna is beautiful.’

(46) Indicative in complements of reportative verbs
Ivan se oplakva [če Maria / # Maria da tantsuva].
Ivan REFL complain.3SG.PRES that Maria Maria SUBJ dance.3SG.PRES
‘Ivan complains that Maria is dancing/dances.’

The data above show that the indicative verbal forms and da forms occur in different semantic environments. Moreover, the semantic environment in which da forms appear in Bulgarian parallels the environment in which subjunctive complements occur in Romance and Germanic languages.63 The data provide yet another piece of evidence

63 Even though in this dissertation I focus on the distribution of da-clauses in complements of propositional attitude verbs, a brief look at other environments that traditionally trigger the subjunctive reveals further similarities between Bulgarian and other languages. First, similar to subjunctive clauses in other languages (cf. (ia) and (ib) below), da forms occur in the antecedent of counterfactual (e.g. subjunctive) conditionals, as (ii) shows (cf. Stalnaker 1975, Schlenker 2005 on indicative and subjunctive conditionals).

(i) Subjunctive in counterfactual conditionals
      If Mary were coming to the party, I would come too
   b. Greek, from Iatridou (2000: 233), ft. 2, ex. (i)
      Na ixe xrimata o Kostas tha aγoraze afto to spiti.
      NA had money     Kostas FUT buy      this      house.
      ‘If Kostas had money, he would buy this house.’
(ii) Bulgarian:
      Da beše došla Maria na kupon, 
          SUBJ be.3SG.PAST come.PPLE Maria to party,
          az štjah da dojda sāsto.
          I would DA come.PERF.1SG.PRES also
      ‘If Mary were coming to the party, I would come too.’

The ability to introduce a counterfactual antecedent is what distinguishes da from the conditional marker ako ‘if’. The data in (iii) show that unlike ako ‘if’, da is not possible if the antecedent has factual meaning.

(iii) Ako/#da beše izpil otrova, toj štše da ima
    If/ SUBJ be.3SG.PAST drink poison, he will.PAST SUBJ have.3SG.PRES
    sāštite simptomi, koito ima i sega.
    same symptoms that have.3SG.PRES and now

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supporting the analysis of *da* forms as subjunctive. In the next section, I summarize the discussion of the properties of *da* constructions, and show that they should be analyzed as the members of the category of subjunctive proper. I return to the pattern of the mood distribution in chapters 10 and 11, where I use the distributional factors to motivate the semantic analysis of the indicative and the subjunctive.

**9.4 Summary**

The discussion in this chapter has shown that *da* forms in Bulgarian are associated with a number of unique morpho-syntactic and semantic properties, which are distinct from the properties of the indicative verbal forms. The empirical observations are summarized in Table 11.

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‘If he took the poison, he would have the same symptoms that he is having now.’

Second, *da* forms in Bulgarian also appear in concessive clauses (cf. the (iv) and (v) from Catalan and Bulgarian).


> Aun cuando lleguen tarde, les dejará entrar
>
> ‘Even if they arrive late, s/he will let them in.’

(v) Bulgarian:

> Dori da dojdat kāsno, tja pak šte gi pusne.
>
> ‘Even if they arrive late, s/he will let them in.’

Finally, similarly to e.g. Romanian (Farkas 1985), *da* forms appear in relative clauses. In such cases the construction does not have the existence presupposition. Thus, the noun phrase *sekretarka* ‘secretary’ does not refer to any particular individual.

(vi) Tārsja sekretarka, [kojato da govori Italianski].

> look.for.IMPERF.1SG.PRES secretary, who SUBJ speak.IMPERF.3SG.PRES Italian
>
> ‘I look for a secretary who speaks Italian.’

These data present additional evidence that *da* forms should be analyzed as subjunctive.
I conclude that *da* forms in Bulgarian should be analyzed as subjunctive. In the subsequent chapter, I refer to *da* forms as subjunctive forms, and to complements that contain *da* forms as subjunctive complements. In chapter 10, I discuss the main patterns of mood selection in Bulgarian, and formulate the analysis of mood distribution. In chapter 11, I show how the proposed analysis can account for the empirical pattern established in chapter 10.
CHAPTER 10: MOOD DISTRIBUTION

In this chapter, I discuss Bulgarian data, formulate empirical generalizations, and present my proposal for the analysis of mood distribution in Bulgarian. The question about the meaning differences between indicative and subjunctive complements is a matter of an intense theoretical debate (cf. Hopper 1975, Givón 1994, Giannakidou 1998, 2010, Farkas 1992, 2003, Quer 1998, Villalta 2009). Can any of the previous analyses of the mood be applied to explain the pattern of mood distribution in Bulgarian? In section 10.1, I briefly discuss the main trends in the analysis of mood in the theoretical semantic literature and show why none of the existing analyses can be applied to Bulgarian. In section 10.2, I discuss the Bulgarian data, and present empirical generalizations. I show that in Bulgarian there are three patterns of mood distribution: (i) constructions when the indicative is the only choice; (ii) constructions when the subjunctive is the only choice; (iii) constructions when both the indicative and the subjunctive are possible. In section 10.3, I formulate my proposal for the analysis of mood distribution in Bulgarian.

10.1 Previous analyses of mood: a brief overview

In this section, I discuss the two main approaches to the analysis of mood distribution: (i) analyses that explain the phenomenon of mood distribution in terms of semantic properties of selecting verbs (e.g. Hooper 1975, Farkas 1992, Giannakidou 1998, 2009) and (ii) analyses that explain mood distribution in terms of the meaning of the
construction itself, i.e. the indicative/subjunctive (e.g. Siegel 2004). The discussion shows why none of the existing analysis can be applied to Bulgarian in its original form. I return to a more detailed discussion of previous analyses of mood in chapter 13, where I discuss the individual analyses relevant to my proposal.

10.1.1 Mood distribution as dependent on the main verb

A common assumption in the semantic literature is that the distribution of mood in embedded clauses depends on the meaning of the embedding verb (cf. Hooper 1975, Farkas 1992, Giannakidou 1998, 2010, Quer 1998, Villalta 2009). In light of this assumption, the most important question is what semantic characteristics are responsible for the distribution of indicative and subjunctive complement clauses. According to Hooper (1975), the choice of mood in Spanish depends on whether the main verb is assertive or not. Assertive verbs select the indicative, while non-assertive verbs select the subjunctive. For Farkas (1992), the main semantic property responsible for the mood distribution in Romance languages is whether the main verb is intensional or extensional, i.e. whether the proposition in the scope of the embedded verb is evaluated with respect to a set of worlds or a single world, respectively. The core of Giannakidou’s influential analysis of mood distribution in Greek is the idea that mood distribution depends on the semantic property veridicality (Giannakidou 1998, 2009). According to Giannakidou’s proposal (discussed in detail in chapter 13), veridical verbs, i.e. verbs that commit the subject or the speaker to the belief that the proposition in the scope of the verb is true, select the indicative, while non-veridical verbs, i.e. verbs that do not encode such a commitment, select the subjunctive. Finally, in the recent formal semantic literature,
gradability is taken to be the semantic feature responsible for the distribution of mood (Villalta 2008, but see also Giorgi and Pianesi 1997 for a similar idea). According to Villalta’s proposal, the function of the subjunctive mood in Spanish is to evaluate contextual alternatives, and only verbs that encode a gradable scale, on which the relevant alternatives can be compared, can select the subjunctive.

Despite the fact that the abovementioned analyses attribute the selection of mood to different semantic properties of matrix predicates, they share a lot of similarities at the conceptual level. Specifically, within such analyses, predicates that select the indicative possess a semantic feature, i.e. $\alpha$, that is incompatible with the meaning of the subjunctive, and predicates that select the subjunctive possess a semantic feature, i.e. $\beta$ that is incompatible with the meaning of the indicative. Thus, within such analyses, the relation between the relevant semantic property, i.e. $\alpha$ and $\beta$, and mood are formulated in terms of sufficient and necessary conditions: the indicative is selected iff the matrix clause predicate has a semantic feature $\alpha$, and the indicative is selected iff the matrix clause predicate has a semantic feature $\beta$. This assumption allows one to account for unambiguous cases, i.e. when the subjunctive is the only choice (cf. mood in complements of volitional verbs) or when the indicative is the only choice (cf. mood in complements of factive verbs). However, the design of these analyses is such that the pattern of the double mood selection, i.e. cases when the same verb can select the indicative and the subjunctive, cannot be accounted for. Yet, most of the languages discussed in the literature show a pattern of the double mood selection (cf. Rivero 1970 on Spanish, Quer 1998 on Spanish and Catalan, Siegel 2004 on Romance languages in
general). The example in (47) shows that the Italian verb crede ‘believe’ selects both the indicative and the subjunctive complement. (I return to the meaning differences between the two complements below.)

(47) Italian, from Siegel (2004:723), ex. (19)\(^{64}\)

a. Gianni crede che Mario abbia vinto il premio.
   Gianni believes that Mario has (SUBJ) won the prize

b. Gianni crede che Mario ha vinto il premio.
   Gianni believes that Mario has (IND) won the prize

Bulgarian has a robust pattern of double mood selection. As I show in section 10.3, perception verbs, some epistemic assessment verbs such as spomnjam si ‘remember’ as well as negated epistemic and factive verbs can select both the indicative and the subjunctive. The example in (48) with the perception verb čuvam ‘hear’ demonstrates the pattern.

(48) a. Čuvam [da pee].
   hear.IMPERF.1SG.PRES SUBJ sing.IMPERF.3SG.PRES
   ‘I hear him/her singing.’

b. Čuvam [če pee].
   hear.IMPERF.1SG.PRES that sing.IMPERF.3SG.PRES
   ‘I hear that he/she is singing.’

The pattern of the double mood selection as in (47) and (48) is hard to account for within a framework that explains the distribution of mood in terms of semantic properties of matrix verbs and states the relation between the semantic property and mood in terms of sufficient and necessary conditions. Within such frameworks, one would have to assume that verbs that select both complements, such as čuvam ‘hear’ in Bulgarian, are ambiguous, i.e. čuvam\(_1\) possesses a semantic feature \(\alpha\), and čuvam\(_2\) possesses a semantic

\(^{64}\) Adapted with modifications.
feature $\beta$, so that čuvam₁ always selects the indicative, while čuvam₂ always selects the subjunctive. Such an analysis essentially boils down to postulating two homophonous lexical entries but with different semantic properties for each predicate that is compatible with both the subjunctive and the indicative complement. Such a solution is unsatisfactory: it multiplies the number of words in the lexicon. In the next section, I discuss an alternative approach to mood distribution, advocated by Siegel (2004).

10.1.2 Mood distribution as dependent on mood semantics: Siegel (2004)

That the pattern of mood distribution cannot be attributed exclusively to the semantics of selecting verbs is recognized by authors who discuss the phenomenon of the double mood selection, i.e. the cases in which the same predicate is compatible with the subjunctive and the indicative mood (cf. Rivero 1971, Quer 1998, Siegel 2004). The authors differ with respect to how they propose to accommodate such cases. In this section I specifically focus on Siegel’s proposal because she presented a most recent study and analysis of this phenomenon.

Siegel (2004) observes, that “in many environments in Romance, indicative is associated with a supposition that the speaker believes in the truth of the embedded proposition, while subjunctive has no such association” (Siegel 2004:724). Siegel provides the examples in (49a) and (49b) to support her claim.

(49) Italian, from Siegel 2004:723, ex. (19)
   a. Gianni crede che Mario abbia vinto il premio
      Gianni believes that Mario has (SUBJ) won the prize
      … ma io penso che non sia vero.
      but I think it not true.
b. Gianni crede che Mario ha vinto il premio,
   Gianni believes that Mario has (IND) won the prize
   … # ma io penso che non sia vero.
   but I think it is not true.

In (49a) the speaker uses the subjunctive to communicate the content of Gianni’s belief and then felicitously continues the sentence by indicating that she does not share Gianni’s attitude. On the other hand, in (49b), the content of Gianni’s belief is reported with the indicative, and the speaker can no longer disagree with him.

Siegel attributes the observed differences in the speaker’s epistemic commitment between indicative and subjunctive complements to the meaning differences between the indicative and the subjunctive mood, not to the meaning of the main verb (cf. also Rivero 1971). For Siegel, “the notion of speaker commitment to the truth of the embedded clause that is associated with indicative is generally referred to as presupposition (conventional implicature)” (Siegel 2004:720). Under this analysis, the commitment to the truth is part of the conventional meaning of the indicative. Unlike the indicative, the subjunctive mood lacks such a supposition.

While Siegel’s analysis accounts for the pattern of the double mood selection in (49), its application to unambiguous cases of the double mood selection, i.e. to the cases when the indicative is the only choice or when the subjunctive is the only choice, is more problematic. First, if the supposition on the part of the speaker is part of the conventional meaning of the indicative mood, we expect that the supposition will be present whenever the indicative is selected. This prediction is not borne out. For one thing, there are

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65 The notion of presupposition that Siegel (2004) assumes is different from the standard definition in that “the speaker believes in the truth of the embedded proposition need not be information that is already present in the common ground (Stalnaker 1974)” (Siegel 2004:720). She uses the term “supposition” to refer to the speaker’s commitment in the indicative she assumes.
examples when the indicative is used, yet the speaker is not necessarily committed to the truth of the proposition expressed by the embedded clause. The sentence in (50), from Rivero (1971), has the indicative complement, yet it is ambiguous and “can receive an interpretation where the speaker assumes the truth of the complement or one where the speaker remains neutral” (Rivero 1971:328).

(50) Spanish, from Rivero (1971:328), ex. (55b)
Cree que lo hace bien (Ind.)
‘He believes that he does it right.’

While Siegel’s analysis can account for the reading in which the speaker is committed to the truth, the neutral reading of (50) cannot be easily explained within her framework. While one might argue that the cases such as (50) do not present a solid argument against Siegel’s proposal due to the fact that the ambiguity in (50) seems to be a matter of dialectal variation, as observed in Rivero (1971), there are other cases which cannot be easily explained with Siegel’s framework. Specifically, there are examples when the subjunctive commits the speaker to the truth of the proposition $p$ expressed by the complement, such as (51).

(51) Spanish, from Rivero (1971:329), ex. (56)
Es raro que llueva (Subj.)
‘It is strange that it is raining.’/ ‘Rain(ing) is strange.’

According to Rivero, (51) is ambiguous. “The first interpretation presupposes the truth of the complement: it is raining and I feel that that is strange. The second reading does not assume that the complement is true; it is a general statement and it may be uttered even if no rain is present” (Rivero 1971:329). Since in Siegel’s analysis the subjunctive “is associated with neutral commitment on the part of the speaker to the truth of the
embedded proposition” (Siegel 2004:720), it is hard to see how such an analysis can account for the first reading of (51). Another interesting question that the data in (51) raise is why verbs such as raro ‘strange’ select the subjunctive in the first place.

Siegel (2004) argues that the indicative is not possible in complements of emotive factive verbs such as raro ‘strange’ in Romance because emotive factive verbs presuppose the truth of their complement as part of their lexical meaning. Thus, if the emotive factive selected the indicative, the same information, i.e. the commitment to the truth of the proposition \( p \) expressed by the embedded clause would be represented twice: (i) in the lexical semantics of the emotive factive verb and (ii) in the meaning of the indicative mood. Siegel argues that the language avoids such a redundancy by only allowing the subjunctive in complements of emotive-factive predicates. The problem is that such an analysis predicts that factive verbs in Spanish also select the subjunctive, but this is not the case.

A more general problem for Siegel’s analysis is that it accounts for the pattern of the double mood selection in Spanish in a rather idiosyncratic way, which can hardly be extended to the cases of unambiguous mood selection, i.e. cases when the indicative is the only choice or when the subjunctive is the only choice. Because of this limitation, Siegel’s analysis, despite its certain advantages, i.e. the ability to account for the double selection, cannot be applied to Bulgarian in its original form.

10.1.3 Summary

This section discussed two conceptually different approaches to the analysis of mood: (i) analyses that explain mood in terms of semantic properties of matrix verbs (cf. Hooper...
1975, Farkas 1992, Giannakidou 1998, 2009), and (ii) analyses that explain mood in terms of the semantics of the indicative/subjunctive (Siegel 2004). The discussion has shown that the analyses that attribute the distribution of mood to semantic properties of matrix verbs are not well equipped to account for the cases of the double mood selection (but see Giannakidou 1998, 2009). At the same time, the analyses that explain the differences between the subjunctive and the indicative in terms of the meaning differences of the mood itself (cf. Siegel 2004) can account for the cases of the double subcategorization, but cannot be easily extended to the cases of unambiguous mood selection. In order to decide what analysis is needed for Bulgarian, I first look at the empirical pattern. In section 10.2, I discuss the data and methodology, and present empirical generalizations. In Section 10.3, I formulate the proposal for the analysis of mood distribution in Bulgarian. Section 10.4 shows how this analysis accounts for the pattern of mood selection in Bulgarian. I arrive at the generalization at the end of this chapter that both the meaning of the verb and the semantics of mood need to be taken into consideration in order to account for the pattern of mood distribution in Bulgarian.

10.2 The empirical pattern of mood distribution in Bulgarian

10.2.1 Previous studies of mood distribution in Bulgarian

In order to answer the question about the meaning of sentences with subjunctive and indicative complements, the relevant empirical generalizations need to be established first. In what follows, I describe the data collection process and methodology.
There are no previous formal analyses of mood in Bulgarian. Thus, the potential starting point as far as the data collection is concerned is the analysis of data presented in descriptive literature and traditional Bulgarian grammars (Bulgarian academy grammar 1994, Genadieva-Mutafčieva 1970).

Genadieva-Mutafčieva (1970) presents a detailed study of *da* forms in Bulgarian in a variety of embedding environments, including complements of propositional attitude verbs. Her monograph is a valuable data source, as she lists major semantic environments in which *da* occurs and provides lists of verbs and examples. However, the generalizations provided there require further refinement. For example, Genadieva-Mutafčieva (1970) identifies the following semantic classes of verbs that select *da* complements: (i) volitional verbs such as *iskam* ‘want’; (ii) directive verbs such as *karam* ‘urge’; (iii) perception verbs such as *viždam* ‘see’; (iv) cognitive activity verbs such as *mislja* ‘think’. A potential problem with such a generalization is that it collapses together constructions in which the subjunctive is the only choice, i.e. complements of volitional verbs such as *iskam* ‘want’, and constructions in which the subjunctive is one of the two possible choices, i.e. when the same verb is in principle compatible with both indicative and subjunctive complements, such as *viždam* ‘see’. Moreover, some of the verbs presented in Genadieva-Mutafčieva (1970), such as *mislja* ‘think’, select the subjunctive under negation only. (When negated, these verbs fall into the class of verbs that select both indicative and subjunctive complements.) Without negation, verbs such as *mislja* ‘think’ select indicative complements only. These differences are important, as the literature overview on the Romance subjunctive has shown (Quer 1998). Moreover,
collapsing together (i) verbs that always select the subjunctive, (ii) verbs that select the subjunctive under negation only, and (iii) verbs that select both the indicative and the subjunctive makes it hard to identify the factors responsible for mood distribution and can give rise to an analysis that can only partially account for the data.

Most importantly, because Genadieva-Mutafčieva (1970) does not analyze *da* complements as subjunctive, the opposition between *da* and *če* complements is irrelevant for her study. Thus, she does not discuss what verbs select *če* complements in Bulgarian. Because *če* complements are rarely discussed in traditional Bulgarian grammars, I used the discussion about the distribution of indicative complements in other languages to collect the Bulgarian data. Specifically, I used the following works as data sources: Giannakidou (1998), (2010) on Greek, Giorgi and Pianesi (1997) on Romance languages in general, Quer (1998) on Catalan and other Romance languages.

### 10.2.2 Empirical generalizations: three patterns of mood selection in Bulgarian

For the purpose of the current study, a list of complement-taking predicates was constructed (see Appendix A). The list consists of 48 predicates, divided into 10 semantic classes: factive (e.g. *znam* ‘know’), emotive factive (e.g. *radvam se* ‘be glad’), epistemic (e.g. *mislja* ‘think’), reportative (e.g. *kazvam* ‘say’), strong epistemic commitment verbs (e.g., *sigurno* ‘certain’), perception (e.g. *čustvam* ‘feel’), epistemic assessment verbs (e.g. *spomnjam si* ‘remember’), volitional (e.g. *iskam* ‘want’), directives (e.g. *karam* ‘urge’), and weak epistemic commitment verbs (e.g. *sǎmnjavam se* ‘doubt’). In order to establish
the selectional pattern for each verb on the list, two types of data analysis were performed: (i) the analysis of naturally occurring data on the Internet; (ii) the analysis of native speakers’ judgments on constructed examples. Combining these two methods allows me to collect data that reflects the phenomenon of da/če distribution in contemporary language. For comparison, the most comprehensive data collection on da-complements presented in Genadieva-Mutafčieva (1970) is based on the data from 1824 to 1967 (Genadieva-Mutafčieva 1970:7), and upon checking, some of the examples presented in her study are judged as infelicitous by speakers of contemporary Bulgarian.

Data available on the Internet, while having certain disadvantages over structured interviews with a language consultant, is nevertheless essential for clarifying the basic distributional pattern, especially at the initial stage of the investigation, as it can provide definite answers on whether examples of a particular kind occur or do not occur (cf. Beaver 2004). For the purpose of this study, a controlled Google search for minimal pairs of the form in (52) was performed.\footnote{The usage of the pronoun az ‘I’ was necessary in order to ensure that examples with the negated matrix verbs – the negation appears in the position immediately before the verb – are excluded from the corpus. As I show in the subsequent discussion, negation affects mood distribution in a non-trivial manner, and it was important to isolate this factor at an early stage of the investigation. Since Bulgarian is a pro-drop language, the number of examples with an overt subject, presented in Table 1, is smaller than the number of examples without an overt personal pronoun. The choice of a specific verb in the embedded clause, i.e. ima ‘have’, further reduced the number of hits returned for each verb. The decision to include an embedded verb was motivated by the struggle for uniformity and the desire to have as parallel a corpus as possible. For comparison, the number of hits returned for the verb znam ‘I know’ with and without an overt pronoun and with and without the embedded verb is the following.

(i) znam če
know.IMPERF.1SG.PRES that
‘know that’ 9, 650, 000

(ii) znam če ima
know.IMPERF.1SG.PRES that be.IMPERF.3SG/3PL.PRES
‘know that there is/are’ 5, 010, 000

(iii) az znam če
I know.IMPERF.1SG.PRES that
‘I know that’ 2, 230, 000

}\footnote{228}
(52) a. Indicative:
   Az VERB če ima.
   I VERB that be
   ‘I VERB that there is/are’

b. Subjunctive:
   Az VERB da ima
   I VERB SUBJ be
   ‘I VERB that there is/are’

In (52), VERB stays for the matrix verb, and the embedded complement starts with the indicative marker če or da in the case of the subjunctive, and is followed by the embedded verb ima ‘have’, which is ambiguous between the 3rd person singular and the 3rd person plural. The search returned the results in Table 12.

<table>
<thead>
<tr>
<th></th>
<th>Indicative</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factive</td>
<td>Znam ‘know’</td>
<td>512,000</td>
</tr>
<tr>
<td></td>
<td>Zabeljazvam ‘notice’</td>
<td>59,000</td>
</tr>
<tr>
<td>Emotive factive</td>
<td>Radvam se ‘be glad’</td>
<td>521,000</td>
</tr>
<tr>
<td></td>
<td>Učudvam se ‘be amazed’</td>
<td>48,500</td>
</tr>
<tr>
<td>Epistemic</td>
<td>Mislja ‘think’</td>
<td>2,640,000</td>
</tr>
<tr>
<td></td>
<td>Vjarm ‘believe’</td>
<td>325,000</td>
</tr>
<tr>
<td>Reportive</td>
<td>Tvrdja ‘claim’</td>
<td>143,000</td>
</tr>
<tr>
<td></td>
<td>Kazvam ‘say’</td>
<td>225,000</td>
</tr>
<tr>
<td>Volitional</td>
<td>Iskam ‘want’</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Predpočitam ‘prefer’</td>
<td>1</td>
</tr>
</tbody>
</table>

TABLE 12: The indicative and the subjunctive in ‘I VERB that there is/are’ template
The results show that factive, emotive factive, epistemic and reportative verbs predominantly select the indicative, as the ratio of the examples with indicative to that with subjunctive complements shows. The pattern of mood distribution is reversed for volitional verbs. These verbs predominantly select subjunctive complements.

The pattern established in Table 12 was further confirmed by the analysis of the data collected during the interviews with native speakers. For each verb from the list in Appendix A, a minimal pair with the subjunctive and the indicative complement was constructed. In the constructed examples, the matrix verbs were in the present tense first person singular form, and the embedded verb was a present tense form ‘have’. An example of such a minimal pair for the verb ‘believe’ is given in (53).

(53) a. Vjarvam [če ima teč v rezervoara].
    believe.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank
    ‘I believe there is a leak in the oil tank.’

    b. # Vjarvam [da ima teč v rezervoara].
    believe.IMPERF.1SG.PRES SUBJ have.3SG.PRES leak in oil.tank
    Intended: ‘I believe that there is a leak in the oil tank.’

A native speaker was asked to decide for each example whether it is an acceptable or an unacceptable Bulgarian sentence. The grammaticality judgments for each individual

---

67 Bulgarian and other Balkan languages differ from Romance languages as far as the mood selection by emotive factive verbs is concerned: while emotive factive verbs in e.g. Spanish and French select the subjunctive, in Balkan languages, members of this semantic group license the indicative (cf. Farkas 1992:71, Siegel 2004).

68 The deviations from the expected pattern observed in Table 12, i.e. the subjunctive in complements of factive verbs such as ‘know’ and the indicative in complements of verbs such as ‘want’ are due either to typos, or to a different syntactic pattern. For example, the common source of the subjunctive complements with the verb ‘know’ are constructions of the form ‘I know, yes, there are’ where ‘da is an affirmative particle ‘yes’, and not the subjunctive morpheme ‘da.

69 At this stage of the data collection, of primary interest was the question of whether the construction of a particular kind occurs or does not occur. The examples were presented out of the context. Even though a semantic analysis involves presentation of examples in the context, such methodology is only useful at later stages of investigation, when the hypothesis is formulated, and the researcher knows what the independent variable is. The purpose of the context then is to manipulate the independent semantic variable and to test its effect on the dependent semantic variable, i.e. mood. A potential problem with
verb are presented in Appendix A. Overall, factive, emotive factive, epistemic, and reportative verbs select the indicative, (cf. (54) – (57)).

(54) Otkrivam, [# da /če ima teč v rezervoara].
    discover.1SG.PRES SUBJ / that.3SG.PRES have leak in oil.tank
    ‘I discovered that there is a leak in the oil tank.’

(55) Radvam se, [# da /če ima teč v rezervoara].
    be.glad.1SG.PRES REFL SUBJ / that.3SG.PRES have leak in oil.tank
    ‘I’m glad that there is a leak in the oil tank.’

(56) Mislja, [# da /če ima teč v rezervoara].
    think.1SG.PRES SUBJ / that.3SG.PRES have leak in oil.tank
    ‘I think that there is a leak in the oil tank.’

(57) Kazvam, [# da /če ima teč v rezervoara].
    say.1SG.PRES SUBJ / that.3SG.PRES have leak in oil.tank
    ‘I’m saying that there is a leak in the oil tank.’

On the other hand, volitional and directive verbs select the subjunctive only (cf. (58) and (59)).

(58) Iskam [da / če ima tsvetja].
    want.IMPERF.1SG.PRES SUBJ / that.3SG.PRES have flowers
    ‘I want there to be flowers.’

(59) Karam ja [da / če ima tsvetja].
    urge.IMPERF.1SG.PRES her SUBJ / that.3SG.PRES have flowers
    ‘I’m forcing her to have flowers.’

Table 13 summarizes the pattern of mood selection across different semantic classes of propositional attitude verbs.

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<table>
<thead>
<tr>
<th></th>
<th>Indicative</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factive</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Emotive factive</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Epistemic</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Reportative</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Strong epistemic commitment</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Perception</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Epistemic assessment</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Volitional</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Directive verbs</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

**TABLE 13:** The distribution of subjunctive and indicative complements

As Table 13 shows, besides the cases of a uniform mood selection, where each member of the class unambiguously favors one mood over the other, i.e. factive verbs select the indicative only, while volitional verbs select the subjunctive, there are also groups of verbs that select both indicative and subjunctive complements. These are perception verbs, such as čuvam ‘hear’, viždam ‘see’, useštam ‘feel’, as well as verbs of cognitive assessment such as spomnjam si ‘remember’. The relevant minimal pairs are given in (60) and (61).

(60) a. Čuvam [go [da pee].
     hear.IMPERF.1SG.PRES him SUBJ sing.IMPERF.3SG.PRES
     ‘I hear him/her singing.’

b. Čuvam [če pee].
    hear.IMPERF.1SG.PRES that sing.IMPERF.3SG.PRES
    ‘I hear that he/she is singing.’
(61) a. Spomnjam si ja [da pee].
    remember.IMPERF.1SG.PRES REFL her SUBJ sing.IMPERF.3SG.PRES
    ‘I remember her singing.’

    b. Spomnjam si [če peeše].
    remember.IMPERF.1SG.PRES REFL that sing.IMPERF.3SG.PAST
    ‘I remember that she sang.’

Perception and epistemic assessment verbs are not the only predicates that select both types of complements. As observed in the literature on mood in Romance languages (e.g. Quer (1998), under negation, factive verbs such as znam ‘know’ and epistemic verbs such as vjarvam ‘believe’ select subjunctive complements. That negation can affect selectional properties of matrix verbs is also mentioned for Bulgarian by Genadieva-Mutafçiieva (1970) in passing. Thus, once we relax the original criteria used to collect the data presented in Table 12 and Table 13 and allow for sentences with the matrix clause negation to enter the corpus, the number of predicates that can select both the indicative and the subjunctive increases drastically. The examples with the negated epistemic verb ne vjarvam ‘believe’ and with the negated factive verb ne otkrivam ‘discover’ are given in (62) and (63).

(62) a. Ne vjarvam [če ima teč v rezervoara].
    NOT believe.IMPERF.1SG.PRES that be.IMPERF.3SG.PRES leak in oil.tank
    ‘I don’t believe that there is a leak in the oil tank.’

    b. Ne vjarvam [da ima teč v rezervoara].
    NOT believe.IMPERF.1SG.PRES SUBJ be.IMPERF.3SG.PRES leak in oil.tank
    ‘I don’t believe there to be a leak in the oil tank.’

(63) a. Ne otkrih [če ima teč v rezervoara].
    NOT discover.PERF.1SG.PAST that be.IMPERF.3SG.PRES leak in oil.tank
    ‘I didn’t discover that there is a leak in the oil tank.’

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b. Ne otkrih da ima teč v rezervoara.

‘I didn’t discover that there is a leak in the oil tank.’

Table 14 below shows that the indicative and subjunctive complements of negated factive and epistemic verbs have comparable frequencies of occurrence.

<table>
<thead>
<tr>
<th></th>
<th>Indicative</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factive</td>
<td>Ne znam ‘not know’</td>
<td>3,260,000</td>
</tr>
<tr>
<td>Epistemic</td>
<td>Ne mislja ‘not think’</td>
<td>5,370,000</td>
</tr>
<tr>
<td></td>
<td>Ne vjarvam ‘not believe’</td>
<td>769,000</td>
</tr>
</tbody>
</table>

**TABLE 14: The indicative and the subjunctive under negation**

This discussion shows that there are three patterns of mood selection that any analysis of mood in Bulgarian needs to account for. First, there are verbs that select the indicative complement only. Second, there are verbs that select subjunctive complements only. Finally, there are verbs that allow both subjunctive and indicative complements. What implications do these generalizations have for the analysis of mood? The first two patterns suggest that the meaning of the matrix verb is relevant for the analysis of mood. In the cases when the same predicate selects two different types of complements, it seems that other factors beyond the meaning of the matrix verb might be responsible for mood distribution. In the next section, I look at the meaning of the minimal pairs with subjunctive and indicative complements first and formulate the hypothesis for the mood distribution. I then show how this hypothesis can be extended to accounts for two other
patterns: (i) constructions with the indicative as the only choice and (ii) constructions with the subjunctive as the only choice.

10.3. Evaluation of the Bulgarian data

10.3.1 Epistemic commitment and mood: previous proposals

The position that the distribution of mood depends on the epistemic commitment of the relevant epistemic agent is advocated in (Giannakidou 1998, 2010, Quer 1998, Siegel 2004). No such observation has been previously made for Bulgarian, yet the data analysis shows that epistemic commitment does play a role in mood selection. In what follows, I chose the approach in terms of the epistemic commitment as a starting point for formulating the hypothesis of mood distribution in Bulgarian.

The discussion in the previous sections has shown that in Romance languages, the meaning differences between minimal pairs with indicative and subjunctive complements can be characterized in terms of the epistemic commitment on the part of the speaker. Thus, in (49) repeated below as (64) the choice of mood correlates with epistemic commitment of the speaker (Siegel 2004).

(64) Italian, from Siegel (2004:723), ex. (19)
   a. Gianni crede che Mario abbia vinto il premio
      Gianni believes that Mario has (SUBJ) won the prize
      … ma io penso che non sia vero.
      but I think it is not true.

   b. Gianni crede che Mario ha vinto il premio,
      Gianni believes that Mario has (IND) won the prize
      … # ma io penso che non sia vero.
      but I think it is not true.

The speaker cannot continue the example with the indicative complement in (64a) by
asserting that she does not believe the truth of the proposition \( p = \text{‘Mario won the prize’} \) expressed by the embedded complement. Such a continuation is possible for the sentence with the subjunctive complement. Does epistemic commitment play any role in the mood distribution in Bulgarian?

While the Bulgarian data is different from that in Italian—\( vjarvam \) ‘believe’ only selects the indicative in Bulgarian—there is a correlation between epistemic commitment and mood selection that can be observed in a variety of other contexts. Consider first the examples with the perception verb \( \text{čuvam} \) ‘hear’ in (65) and (66). The context in (65) specifies that the attitude holder, i.e. the individual who experiences cognitive or perceptual sensation, is committed to the truth of the proposition \( p = \text{‘my brother is singing’} \) expressed by the embedded clause.\(^{70}\) Only the indicative complement is possible in such a context (cf. (65a) and (65b)).

(65) Context: You and your brother are staying home. Your brother prepares for an entrance exam at the music academy. He practices singing every day, and you can hear that he is singing now. When your mom calls you on the phone and asks you what your brother is doing, you say:

a. \( \text{Čuvam} \ [\text{da pee}]. \)
\( \text{IMPERF.1SG.PRES} \) him \( \text{SUBJ} \) sing.\( \text{IMPERF.3SG.PRES} \)
‘I hear him singing.’

b. \( \text{Čuvam} \ [\text{če pee}]. \)
\( \text{IMPERF.1SG.PRES} \) that sing.\( \text{IMPERF.3SG.PRES} \)
‘I hear that he is singing.’

In (66), on the other hand, the attitude holder hears someone singing and identifies the voice as possibly belonging to her brother. However, in (66), the speaker cannot fully commit to the truth of the proposition \( p = \text{‘my brother is singing’} \), because unlike the

---

\(^{70}\) The embedded clause does not have an overt subject, which is not surprising given that Bulgarian is a pro-drop language. The agent of singing is understood to be the speaker’s brother, i.e. the discourse-salient referent, whose activity is under discussion in the context in (65).
context in (65), the information she has is not sufficient to identify the voice she hears as her brother’s voice. The pattern of mood distribution is reversed in such a context. Only the subjunctive complement is possible in (66).

(66) Context: You and your brother are staying home. While working in your study room, you hear singing from your brother’s room. You think that it is your brother who is singing, but you are not entirely sure. When your mom calls you on the phone and asks you what your brother is doing, you say:

a. Čuvam go [da pee].
   hear.IMPERF.1SG.PRES him SUBJ sing.IMPERF.3SG.PRES
   ‘I hear him singing.’

b. # Čuvam [če pee].
   hear.IMPERF.1SG.PRES that sing.IMPERF.3SG.PRES
   ‘I hear that he is singing.’

These data suggest that mood selection correlates with epistemic commitment of the attitude holder, i.e. the individual denoted by the matrix clause subject, which in the examples is understood to be a 1st singular pronoun az ‘I’. When the attitude holder is committed to the truth of the proposition \( p \) expressed by the embedded clause, the indicative is the only choice. When the attitude holder is weakly committed to the truth of the proposition expressed by the embedded clause, i.e. when she has some evidence for the truth of \( p \) but is uncertain whether \( p \) holds, the subjunctive is selected.

The examples with negated verb \( ne \ vjarvam \) ‘not believe’ in (67) and (68) provide additional support for this generalization. In (67), the proposition \( p = \) ‘there is a leak in the oil tank’ is expressed by the indicative complement. Because the matrix verb is negated, this sentence commits the speaker to the belief that \( \neg p = \) ‘it is not the case that the oil tank is leaking’. As (67) shows, the attitude holder cannot continue this sentence by asserting that an alternative scenario is possible.
(67) Ne vjarvam [če ima teč v rezervoara, NOT believe.IMPERF.1SG.PRES that have.IMPERF.3SG.PRES leak in oil.tank # no može i da ima. but can.IMPERF.3SG.PRES and SUBJ have.IMPERF.3SG.PRES

Intended: ‘I don’t believe that there is a leak in the oil tank, but there might be.’

In (68), on the other hand, *ne vjarvam* ‘not believe’ selects the subjunctive complement.

The speaker can felicitously continue the sentence by asserting an alternative state of affairs with a possibility modal.

(68) Ne vjarvam [da ima teč v rezervoara],

NOT believe.IMPERF.1SG.PRES SUBJ have.IMPERF.3SG.PRES leak in oil.tank

no može i da ima.

but can.IMPERF.3SG.PRES and SUBJ have.IMPERF.3SG.PRES

‘I don’t believe that there is a leak in the oil tank, but there might be.’

What do these data tell us? The example in (68) shows that the subjunctive expresses a weaker epistemic commitment on the part of the attitude holder compared to the indicative in (67). In what follows, I use ‘≈ p’ to represent a weaker epistemic commitment to the truth of *p*, and ‘≈ ¬p’ to represent a weaker epistemic commitment to the falsity of *p*.

More generally, the Bulgarian data presented in (65) – (68) allow me to conclude that the indicative mood is selected iff the relevant attitude holder is strongly committed to the truth/falsity of *p* expressed by the complement, and the subjunctive selected iff the relevant attitude holder is weakly committed to the truth/falsity of the proposition *p* expressed by the complement. In the next section, I address the question about the differences between Romance languages and Bulgarian as far as the effect of epistemic commitment on mood is concerned.
10.3.2 Differences between Romance languages and Bulgarian

There are three important differences between Romance languages and Bulgarian as far as the relation between epistemic commitment and mood are concerned.

The first difference between Romance languages, as discussed in the previous literature, and Bulgarian pertains to the value of epistemic commitment, i.e. whether the relevant epistemic agent is committed to the truth or to the falsity of the proposition expressed by the embedded clause. It is often observed for Romance languages, that in the examples with the minimal pairs, the indicative commits the speaker to the truth of the proposition expressed by the complement (cf. Rivero 1971, Quer 1998, Siegel 2004).

The following example from Quer illustrates the pattern.

(69) Spanish, from Quer (1998:61), ex. (39):
   El degà no creu [que els estudians es mereixen un premi]
   ‘The dean does not believe that the students deserve (IND) a prize.’
   a. # I jo tampoc no ho crec
      ‘and I do not believe it either.’
   b. però jo crec que sí
      ‘but I believe they do.’

The complement of no creu ‘not believe’ is realized in the indicative mood, and the speaker cannot continue the sentence by asserting that she does not believe the truth of the proposition $p = \text{‘the students deserve the prize’}$, expressed by the complement, as the infelicity of (69a) shows. The Bulgarian pattern is different, as in the corresponding Bulgarian example in (70) shows. In (70), the speaker can continue the sentence with the indicative complement by asserting that she is not committed to the truth of the proposition $p = \text{‘students deserve the prize’}$ expressed by the complement (70a).
Moreover, the felicity of (70b) shows that the epistemic commitment of the speaker is irrelevant for the mood selection in Bulgarian, and I will confirm this observation later (cf. the discussion of (75)).

The examples in (71) and (72) confirm the observation that the indicative mood can be selected if the speaker is committed to the falsity of the proposition $p$ expressed by the complement. The context in (71) specifies that the speaker believes that the proposition $p = \text{‘there is a leak in the oil tank’}$ is false, yet the indicative is selected.

(71) Context: There is a mechanical problem with your boat. Your friend suggested that there is a leak in the oil tank. You know for sure that the oil tank is not leaking. When your friend asks you about your opinion, you say:

Ne vjarvam [če ima teč v rezervoara, NOT believe.IMPERF.1SG.PRES that have.IMPERF.3SG.PRES leak in oil.tank]
‘I don’t believe that there is a leak in the oil tank, but there might be.’

In (71), the commitment to the falsity of the proposition $p = \text{‘there is a leak in the oil tank’}$ is due to the effect of the matrix clause negation. The negative commitment can also arise from the lexical semantics of matrix verbs (cf. Karttunen (1971:8) for a discussion...
of negative implicative verbs). In Bulgarian, verbs such as lăţa ‘lie’ commit the speaker to the falsity of the proposition \( p \) expressed by the complement clause, yet lăţa ‘lie’ selects the indicative complement, as the example in (72) shows.

(72) Lăţa,                          
lie.IMPERF.1SG.PRES        SUBJ / that have.3SG.PRES leak in oil.tank  
# da      /če ima                  teč v rezervoara].
‘I’m lying that there is a leak in the oil tank.’

The data in (70) – (72) show that in Bulgarian, unlike in the Romance languages, the indicative is not associated with the commitment that the proposition \( p \) expressed by the complement is true as far as the speaker is concerned. The indicative is possible in situations when the speaker is committed to the falsity of the proposition \( p \) expressed by the embedded complement.

The second difference between Romance languages, as discussed in the previous literature (Rivero 1971, Quer 1998, Siegel 2004), and Bulgarian concerns the strength of commitment associated with the subjunctive. It is often observed for Spanish that the subjunctive is associated with a lack of commitment (cf. Rivero 1971, Quer 1998, Siegel 2004). Unlike Romance languages, in Bulgarian, the subjunctive commits the speaker to a particular epistemic position, but the commitment is weaker compared to the cases when the indicative mood is selected. In all the examples with the subjunctive, the speaker adopts a particular epistemic stance with respect to the truth or falsity of the proposition expressed by the embedded clause. In (66), repeated below in (73), the attitude holder is not non-committal: she identifies the voice she hears as possibly belonging to her brother, but the amount of evidence she has is not sufficient to license the indicative.

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(73) Context: You and your brother are staying home. While working in your study, you hear singing from your brother’s room. It must be your brother who is singing, but you are not entirely sure. When your mom calls you on the phone and asks you what your brother is doing, you say:

a. Čuvam go [da pee].
   hear.IMPERF.1SG.PRES him SUBJ sing.IMPERF.3SG.PRES
   ‘I hear him singing.’

b. # Čuvam [če pee].
   hear.IMPERF.1SG.PRES that sing.IMPERF.3SG.PRES
   ‘I hear that he is singing.’

Similarly, in (71), repeated below as (74), the attitude holder thinks that the oil tank is not leaking, i.e. she is committed to the proposition $p = \text{‘it is not the case that the oil tank is leaking’}$ rather than being non-committal.

(74) Ne vjarvam [da ima teč v rezervoara],
   NOT believe.IMPERF.1SG.PRES SUBJ be.IMPERF.3SG.PRES leak in oil.tank
   no može i da ima.
   but can.IMPERF.3SG.PRES and SUBJ be.IMPERF.3SG.PRES
   ‘I don’t believe that there is a leak in the oil tank, but there might be.’

As in the previous example, in (74), the strength of commitment is weaker than in the corresponding construction with the indicative, but what is important is that there is a commitment nonetheless.

Last but not least, Bulgarian differs from Romance languages, as described in the previous literature, as far as the identity of the epistemic agent whose commitment affects the choice of mood is concerned. According to the previous literature, in Italian, as well as in other Romance languages, the mood of the complement clause correlates with the epistemic commitment of the speaker (Rivero 1971, Quer 1998, Siegel 2004). What is the right generalization in Bulgarian? In the examples (65)-(68) considered so far, the choice of mood correlated with the epistemic commitment of the attitude holder, i.e. the referent
of the matrix clause subject. However, all these are examples with the 1st person singular subject, and in such examples the subject/attitude holder is also the speaker. In order to answer the question of whose commitment matters, we need to consider examples when the subject/attitude holder and the speaker are not identical, e.g. when the subject/attitude holder is in the 3rd person singular/plural. The data presented below show that when the subject/attitude holder and the speaker are distinct individuals, it is the epistemic commitment of the subject/attitude holder that affects the pattern of mood selection in Bulgarian, and not that of the subject. Consider first the example in (75). This example shows that the belief of the speaker is irrelevant for the mood selection in Bulgarian (cf. also (71)). The example in (75) commits Ivan, the referent of the subject noun, to the belief that \( p = 'there is a leak in the oil tank' \) is false. The commitment of the speaker does not correlate with the choice of mood. The speaker can continue the sentence in (75) by asserting that she is committed to the truth of \( p = 'there is a leak in the oil tank' \), as in (75a), or by asserting that she is committed to the falsity of \( p \), as in (75b).

(75) Ivan ne vjarva

Ivan NOT believe.IMPERF.1SG.PRES
[če ima teč v rezervoara].
that have.IMPERF.3SG.PRES leak in oil.tank
‘Ivan does not believe that there is a leak in the oil tank...’

a. i az sǎšto ne vjarvam,
and I also NOT believe.IMPERF.1SG.PRES
[če ima teč v rezervoara].
that have.IMPERF.3SG.PRES leak in oil.tank
‘...and I don’t believe it either that they are deserving the prize.’

b. no az vjarvam,
but I believe.IMPERF.1SG.PRES
[če ima teč v rezervoara].
that have.IMPERF.3SG.PRES leak in oil.tank
‘but I believe that there is a leak in the oil tank.’

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What is responsible for the selection of the indicative in (75)? In what follows I show that it is the epistemic commitment of the attitude holder, specifically, the commitment that \( p \) = ‘there is a leak in the oil tank’ is false that licenses the indicative. The example in (76) shows that when the indicative is selected, the attitude holder, i.e. Ivan, must be committed to a particular epistemic position, i.e. to the belief that \( p \) = ‘there is a leak in the oil tank’ is false. The sentence cannot be felicitously continued with (76a), which attributes a weaker commitment to Ivan. On the other hand, a continuation which attributes a weaker possibility to the speaker is possible, as (76b) shows.

(76) Ivan ne vjarva
Ivan NOT believe.IMPERF.1SG.PRES
‘Ivan does not believe that there is a leak in the oil tank.’
[če ima teč v rezervoara].
that have.IMPERF.3SG.PRES leak in oil.tank

a. # Spored nego, može i da ima teč.
   According him, can and SUBJ have.IMPERF.3SG.PRES leak
   ‘According to him, it is possible that there is a leak.’

b. Spored men, može i da ima teč.
   according me, can and SUBJ have.IMPERF.3SG.PRES leak
   ‘In my opinion, it is possible that there is a leak.’

The data in (76) show that it is the epistemic commitment on the part of the attitude holder, i.e. Ivan, and not that on the part of the speaker, that is responsible for the choice of the indicative mood in (76).

This discussion shows that the pattern of mood selection in Bulgarian, while having certain similarities to Romance languages, is different in several respects. First, the epistemic agent whose commitment affects the pattern of mood selection in Romance languages is the speaker, while in Bulgarian it is the attitude holder. Second, in Romance
languages, the indicative correlates with the commitment to the truth of the proposition \( p \) expressed by the embedded complement. In Bulgarian, on the other hand, the indicative can be selected when the relevant epistemic agent, i.e. the attitude holder, is committed to the falsity of the proposition \( p \) expressed by the complement. Finally, while in Romance languages the subjunctive is characterized as non-committal, in Bulgarian the attitude holder is not non-committal: s/he favors a particular epistemic position, yet her commitment is weaker than what is required by the contexts that license the indicative. These differences are summarized in Table 15.

<table>
<thead>
<tr>
<th>Criteria for comparison</th>
<th>Romance languages</th>
<th>Bulgarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epistemic agent committed</td>
<td>speaker</td>
<td>attitude holder</td>
</tr>
<tr>
<td>Value of commitment in the indicative</td>
<td>truth of ( p )</td>
<td>truth of ( p )/falsity of ( p )</td>
</tr>
<tr>
<td>Value of commitment in the subjunctive</td>
<td>lack of commitment</td>
<td>weaker commitment</td>
</tr>
</tbody>
</table>

**TABLE 15: Correlation between epistemic commitment and mood: comparison between Romance languages and Bulgarian**

In the next section, I formulate the working hypothesis for the mood distribution in Bulgarian based on the observations made so far.
10.3.3 The proposal for the analysis of mood distribution in Bulgarian

The empirical generalizations presented in the previous section allow me to formulate the following proposal for the analysis of mood distribution in Bulgarian.

(77) Proposal: There is a correlation between the choice of mood in Bulgarian, the indicative and the subjunctive, and the epistemic commitment of the attitude holder. The indicative is selected iff the attitude holder is committed to the truth/falsity of the proposition expressed by the embedded clause. The subjunctive is selected iff the attitude holder is weakly committed to the truth/falsity of the proposition expressed by the embedded clause.

In the next chapter, I evaluate this proposal against the Bulgarian data. I construct the contexts in which the epistemic commitment of the attitude holder is an independent variable and compare the distribution of indicative and subjunctive complements in these contexts. Moreover, I show that the proposed analysis explains not only the pattern of the double mood selection but can also be extended to constructions with unambiguous mood selection: (i) constructions when the indicative is the only choice and (ii) constructions when the subjunctive is the only choice.
CHAPTER 11: ACCOUNTING FOR THE THREE PATTERNS OF MOOD SELECTION

In this chapter, I show how the proposal in (77) can account for the three patterns of mood selection: (i) constructions that allow for both the indicative and the subjunctive mood, (ii) constructions in which the indicative is the only choice, and (iii) constructions in which the subjunctive is the only choice.

11.1 Constructions that allow both the indicative and the subjunctive

The data collected for the purpose of this study show that there are three major groups of verbs that select both indicative and subjunctive complements. These are (i) perception verbs, (ii) verb of epistemic assessment, such as spomnjam si ‘remember’, and (iii) negated epistemic and factive verbs. The proposal in (77) was formulated based on the examples with matrix verbs čuvam ‘hear’ and ne vjarvam ‘not believe’ that belong to this group. In this section, I consider more examples of verbs that show the patterns of the double mood selection and show that the generalization and the proposal presented in (77) can be extended to the whole class.

11.1.1 Perception verbs

Perception verbs are traditionally analyzed as veridical (e.g. Montague 1969, Giannakidou 1998). They commit the attitude holder to the truth of the proposition expressed by the complement embedded under the verb of perception. Moreover,
sentences with matrix clause perception verbs usually have actuality entailments. Thus, the sentence *John sees a man in a brown hat* entails that the man in the brown hat exists. However, when the perception verb appears in the progressive, as in (78), due to David Dowty (p.c.), the actuality entailment does not arise.

(78) a. John was seeing ghosts then. There was not actually anyone there.
   b. He is hearing voices inside his head again. He should be given a higher dose of medication.

Moreover, there are contexts when the perception verbs do not function as veridical. In (79), perception verbs *saw* and *heard* are “epistemically neutral” (Barwise 1981), i.e. non-veridical.

(79) From Barwise (1981:374), ex. (5) and (7)
   a. Ralph saw a spy hiding a letter under a rock.
   b. The mother heard her baby crying.

In these examples, the events denoted by the embedded clause are not necessarily true as far as the epistemic agent who experiences the perception is concerned. Thus, in (79) the mother is not entirely sure that her baby is crying. It might be the case that the baby is crying and it might be the cases that it is not crying, hence the term “epistemically neutral”.

In Bulgarian, perception verbs can also be used in two types of contexts, veridical, i.e. when the attitude holders are committed to the truth of the proposition expressed by the embedded sentence, and contexts when the attitude holders have a weaker commitment to the truth of the proposition expressed by the embedded clause. Situations of the latter type include reporting visual perception in reduced visibility conditions (cf. Usberti 1977:306), trying to smell when your nose is stuffed, etc. As the examples below show, in
Bulgarian, the strength of commitment correlates with the choice of mood. If the attitude holder is weakly committed to the truth/falsity of the proposition expressed by the complement, the subjunctive is selected, and the indicative is infelicitous. If, however, the attitude holder believes that the proposition expressed by the complement is true, the indicative is the only available option. The data in (80) and (81) demonstrate the pattern for the perception verb *viždam* ‘see’.

(80) Context: You have a meeting with your friends and are waiting for them outside. It is foggy and you cannot see well. You see a group of people approaching, who might be your friends. You tell your sister:

a. Viždam gi [da idvat].
   see.IMPERF.1SG.PRES them SUBJ come.IMPERF.3PLPRES
   ‘I see them coming.’

b. # Viždam [če idvat].
   see.IMPERF.1SG.PRES that come.IMPERF.3PLPRES
   ‘I see that they are coming.’

(81) Context: You are waiting for your friends. You have good eyesight and can clearly see that the people approaching are your friends. You tell your sister:

a. # Viždam gi [da idvat].
   see.IMPERF.1SG.PRES them SUBJ come.IMPERF.3PLPRES
   ‘I see them coming.’

b. Viždam [če idvat].
   see.IMPERF.1SG.PRES that come.IMPERF.3PLPRES
   ‘I see that they are coming.’

The proposal for mood selection in (77) also accounts for the selectional pattern in the complement of verb *useštam* ‘feel’, as the data in (82) and (83) show.

(82) Context: After a visit to the dentist, your tongue is numb, so you don’t have a good perception of taste and temperature. Your sister offers you some coffee, which you feel is cold. When she asks you whether the coffee is OK, you say:

a. Useštam [da e studeno].
   feel.IMPERF.1SG.PRES SUBJ be.3SG.PRES cold
   ‘I feel it to be cold.’
b. # Useštam [če e studeno].
    feel.IMPERF.1SG.PRES that.3SG.PRES cold
    ‘I feel that it is cold.’

(83) Context: Your sister pours you some coffee. When you taste it, you notice that it
is cold. When she asks you whether the coffee is OK, you say:
a. # Useštam [da e studeno].
    feel.IMPERF.1SG.PRES SUBJ be.3SG.PRES cold
    ‘I feel that it is cold.’

b. Useštam [če e studeno].
    feel.IMPERF.SG.PRES that.3SG.PRES cold
    ‘I feel that it is cold.’

In the next section, I continue the discussion about the correlation between mood and
epistemic commitment by focusing on the constructions with epistemic assessment verbs
such as spomnjam si ‘remember’.

11.1.2 Spomnjam si ‘remember’ and other epistemic assessment verbs

Similar to perception verbs, the majority of epistemic assessment verbs, such as
spomnjam si ‘remember’, izležda ‘looks like’, and zvuči ‘sounds like’ in Bulgarian can
occur in two types of contexts: when the speaker is confident that the state of affairs
described by the embedded sentence is true, and in the cases when the speaker is
uncertain of whether the proposition $p$ expressed by the embedded clause is true. The
latter contexts license the subjunctive. The contexts in which the speaker is committed to
the truth of the proposition expressed by the complement require the indicative. The near-
minimal pairs in (84) and (85) show the pattern.\[71\]

\[71\] The indicative and the subjunctive examples differ with respect to the tense on the embedded verb. The
verb spomnjam si ‘remember’ requires the past tense on the embedded verb in the indicative
complement. The subjunctive does not allow the past tense, so the present tense is used in all examples
with the subjunctive complement.
(84) Context: Your childhood friend Maria is now a famous singer. Your mom says that when Maria was a child, she sang at your 10th birthday party. You remember the party and that there was a girl with a beautiful voice who sang at the party. This girl might have been Maria. When your mom asks you if you remember Maria singing, you say:

a. Spomnjam si ja [da pee].
   remember.IMPERF.1SG.PRES REFL her SUBJ sing.IMPERF.3SG.PRES
   ‘I remember her singing.’

b. # Spomnjam si [če peeše].
   remember.IMPERF.1SG.PRES REFL that sing. IMPERF 3SG.PAST
   ‘I remember that she sang last year.’

(85) Context: Your childhood friend Maria is now a famous singer. Your mom says that when Maria was a child, she sang at your 10th birthday party. You clearly remember that Maria sang at your 10th birthday party. She had such a beautiful voice! When your mom asks you if you remember the event, you say:

a. # Spomnjam si ja [da pee].
   remember.IMPERF.1SG.PRES REFL her SUBJ sing.IMPERF.3SG.PRES
   ‘I remember her singing last year.’

b. Spomnjam si [če peeše].
   remember.IMPERF.1SG.PRES REFL that sing. IMPERF 3SG.PAST
   ‘I remember that she sang last year.’

From a cross-linguistic perspective, the pattern shown by spomnjam si ‘remember’ and, specifically, its ability to express information that the speaker is uncertain about, is not unusual. Contexts with non-veridical spomnjam si ‘remember’ parallel the usage of the English verb remember with nominal complements. At first glance, remember appears to be veridical in English. Thus, both (86a) and (86b), due to David Dowty (p.c.), as well as (86c) imply that the events under discussion did take place:

(86) a. I remember the invasion of the city.
    b. I remember Paul’s party in January.
    c. I remember the secret meeting.

However, as David Dowty pointed out to me, these implications can be cancelled by a more detailed context, as shown in his examples in (87).
(87) a. I remember the invasion of the city that we knew the enemy was getting ready to lunch in December 1945, which everybody had feared and prepared for, which never actually occurred at all.

b. I remember the party Paul had gotten us to help him plan in January that had to be cancelled because of the weather.

c. I remember the secret meeting that everybody was talking about so much, which turned out to be only a rumor.

The generalization emerging from this discussion is that *remember* in English and its equivalent in Bulgarian do not necessarily commit the speaker to the belief that the proposition $p$ expressed by the clausal material in the scope of this verb is true. Instead, *remember* in English and *spomnjam si* ‘remember’ in Bulgarian are compatible both with situations when the speaker is committed to the truth of the proposition $p$ and with situations when the speaker has a weaker commitment, or is uncertain (cf. also Karttunen 1971b:340).

Other verbs in the group of epistemic assessment verbs that behave similarly to *spomnjam si* ‘remember’ are verbs such as *izležda* ‘looks like’, and *zvuči* ‘sounds like’.

The distribution of the subjunctive and indicative mood in complements of these verbs parallels the distribution of mood in complements of *spomnjam si* ‘remember’.

In the next section, I show that the observed correlation between mood and epistemic commitment obtains in complements of negated epistemic and factive verbs.

72 The Bulgarian verb *spomnjam si* ‘remember’ differs from the English verb *remember* in that the former can only refer to events in the past with respect to the attitude (cf. Stowell 1982 on English, Smirnova 2008 on Bulgarian). Thus, in *John remembered to lock the door* (from Karttunen 1971b:341, (3b)), the event of locking the door is future with respect to the moment of remembering. In Bulgarian, the order whereby the moment of remembering precedes the event denoted by the embedded clause is not possible.
11.1.3 Negated epistemic and factive verbs

Negated factive verbs such as *ne znam* ‘not know’ and *ne otkrivam* ‘not discover’, as well as epistemic verbs such as *ne vjarvam* ‘not believe’ and *ne mislja* ‘not think’, readily accept subjunctive complements, as the discussion in section 8.2 has shown. Thus, negated factive and epistemic verbs pattern together with perception verbs and verbs of epistemic assessment such as *spomnjam si* ‘remember’ in allowing both types of complements, shown in (88) and (89).

(88) a. Ne otkrih, [da ima teč v rezervoara].
NOT discover.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank
‘I didn’t discover that there is a leak in the oil tank.’

b. Ne otkrih [da ima teč v rezervoara].
NOT discover.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank
Intended: ‘I didn’t discover that there is a leak in the oil tank.’

(89) a. Ne vjarvam, [da ima teč v rezervoara].
NOT believe.IMPER.1SG.PRES SUBJ have.3SG.PRES leak in oil.tank
‘I don’t believe that there is a leak in the oil tank.’

b. Ne vjarvam [da ima teč v rezervoara].
NOT believe.IMPERF.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank
Intended: ‘I don’t believe that there is a leak in the oil tank.’

In what follows, I show that the choice of mood in these constructions depends on the epistemic commitment of the attitude holder. This observation is supported by the two types of evidence, naturally occurring examples and constructed examples.

Two issues are relevant for the discussion of the status of the proposition in complements of negated epistemic and factive verbs: (i) the strength of commitment, and (ii) the value of commitment, i.e. whether the speaker is committed to the truth of the proposition *p* or to the falsity of *p*. As the previous discussion has shown, the strength of
commitment is dependent on the choice of mood: weaker commitment licenses the subjunctive, while stronger commitment requires the indicative. The value of the commitment depends on the presence of negation in the matrix clause (some negated verbs commit the attitude holder to the falsity of $p$) and on the semantics of the matrix verb (verbs such as *lāža* `lie` commit the attitude holder to the falsity of $p$ as part of their lexical semantics). In what follows, I first discuss the correlation between the choice of mood and the strength of epistemic commitment in constructions with negated epistemic and factive verbs.

The examples with negated epistemic and factive verbs presented below provide additional support for the hypothesis that the choice of mood in complements of negated epistemic and factive verbs correlates with the strength of the epistemic commitment of the attitude holder. In (90), the attitude holder believes that the proposition $p = \text{`there is a leak in the oil tank’}$, expressed by the embedded clause, is false, but this commitment is rather weak, since the attitude holder does not have much evidence to support her belief. The subjunctive is the only available choice in such a context.

(90) Context: There is a mechanical problem with your boat. Some people suggested that there is a leak in the oil tank. You haven’t had a chance to examine the oil tank yet. You think that it is unlikely that the oil tank is leaking, but you are not sure. When someone asks you what you think about the possibility of an oil leakage, you say:

a. Ne vjarvam [da ima teč v rezervoara].
   \text{NOT believe.IMPERF.1SG.PRES SUBJ have.3SG.PRES leak in oil.tank}
   \text{`I don’t believe there to be a leak in the oil tank.’}

b. # Ne vjarvam [če ima teč v rezervoara].
   \text{NOT believe.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank}
   \text{`I don’t believe that there is a leak in the oil tank.’}

In (91), on the other hand, the attitude holder is committed to the belief that the oil tank is
not leaking. The context specifies that no doubt crosses the attitude holder’s mind. The indicative is the only available choice in such a context.

(91) Context: There is a mechanical problem with your boat. Some people suggested that there is a leak in the oil tank. You just examined the oil tank and determined that there is no leak. When someone asks you about the results of your mechanical exam, you say:

a. # Ne vjarnam [da ima tč v rezervoara].
   ‘I don’t believe there to be a leak in the oil tank.’

b. Ne vjarnam [če ima tč v rezervoara].
   ‘I don’t believe that there is a leak in the oil tank.’

A similar correlation between the strength of epistemic commitment and the choice of mood is observed in complements of factive verbs, such as otkrivam ‘discover’. The context in (92) specifies that the speaker is weakly committed to the falsity of the proposition $p = \text{the oil tank is leaking}$. The subjunctive is felicitous in such a context, while the indicative is unavailable.

(92) Context: There is a mechanical problem with your boat. Your friend suggested that there is a leak in the oil tank. You just did a mechanical test. Because you are an inexperienced mechanic, you are not certain how to interpret the results. It seemed to you that the oil tank is not leaking, but you are uncertain. When someone asks you about the results of the mechanical exam, you say:

a. Ne otkrih [da ima tč v rezervoara].
   ‘I didn’t discover there to be a leak in the oil tank.’

b. # Ne otkrih [če ima tč v rezervoara].
   ‘I don’t believe that there is a leak in the oil tank.’

In (93), on the other hand, the speaker is committed to the truth of the proposition $p$ expressed by the embedded sentence, i.e. the oil tank is leaking. The indicative is the only possible choice in such a context.
(93) Context: There is a mechanical problem with your boat. When you examined the oil tank, it seemed to you that the oil tank is not leaking. But when Stojan, an experienced mechanic, checked the oil tank, he discovered the leak. Now you are certain that the oil tank is actually leaking. When someone asks you about the results of your mechanical exam, you say:

a. # Ne otkrih [da ima teč v rezervoara].
   NOT otkrih.PERF.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank
   ‘I didn’t discover there to be a leak in the oil tank.’

b. Ne otkrih [če ima teč v rezervoara].
   NOT discover.PERF.1SG.PAST that have.3SG.PRES leak in oil.tank
   ‘I didn’t discover that there is a leak in the oil tank.’

The data considered in this section establish that there is a corelation between the choice of mood and the strength of the epistemic commitment of the attitude holder in complements of epistemic and factive verbs. When the subjunctive mood is selected in complements of negated factive and epistemic verbs, the attitude holder is weakly committed to the belief that $\neg p$, represented as $\approx \neg p$. When the indicative is selected, whether the attitude holder is committed to $p$ or to $\neg p$ depends on the type of the matrix verb, as Table 16 shows. A negated factive verb commits the speaker to the belief that the proposition $p$ expressed by the embedded clause is true (cf. (93b)). A negated epistemic verb commits the speaker to believe that the proposition $p$ expressed by the embedded clause is false (cf. (91b)).
This discussion shows that in complements of both negated factive and negated epistemic verbs, strong commitment to the truth/falsity of $p$ requires the indicative, while a weaker commitment triggers the subjunctive mood. This observation confirms the hypothesis formulated in (77). With respect to the value of commitment, i.e. commitment to the truth or to the falsity of the proposition $p$, the generalizations presented in Table 16 show that negated epistemic and factive verbs behave differently in this respect. When negated factive verbs such as ne znam ‘not know’ and ne otkrivam ‘not discover’ select indicative complements, the attitude holder is committed to the truth of $p$. On the other hand, constructions with indicative complements selected by negated epistemic verbs, such as ne vjarvam ‘not believe’, commit the attitude holder to the belief that $p$ is false. These contrasts are due to the semantic differences between these two types of verbs.

Verbs such as know and discover are factive verbs. Factive verbs are traditionally analyzed as presupposing the truth of the proposition expressed by their complement (e.g. Kiparsky & Kiparsky 1970, Karttunen 1971a, 1971b, 1973). Thus, the sentence in (94a), with the factive verb realize, presupposes (94b).

<table>
<thead>
<tr>
<th>Type of construction</th>
<th>Attitude holder’s commitment to $p$ in the subjunctive</th>
<th>The indicative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neg. factive (I don’t know Mood $p$)</td>
<td>$\approx \neg p$</td>
<td>$p$</td>
</tr>
<tr>
<td>Neg. epistemic (I don’t believe Mood $p$)</td>
<td>$\approx \neg p$</td>
<td>$\neg p$</td>
</tr>
</tbody>
</table>

TABLE 16: Epistemic commitment and mood: factive and epistemic verbs
a. Mary realized that it was raining.
b. It was raining.

When a factive verb is negated, the presupposition of the embedded sentence “projects”, i.e. the new sentence retains the presupposition of the sentence with a non-negated matrix verb (e.g. Frege 1892, Karttunen 1971a, 1979b). Thus, the sentence in (95) with the negated verb realize, still presupposes (94b).

(95) From Karttunen 1971a:3, ex. (7b):
Mary didn’t realize that it was raining.

In Karttunen’s words, the negation “obligate[s] the speaker to accept the complement as true” (Karttunen 1971a:3)).

Negated factive verbs in Bulgarian that select indicative complements pattern similar to negated factive verbs in English, i.e. the presupposition of the embedded sentence survives under negation. Under an epistemic approach to presuppositions, which views presuppositions as relativized to the belief states of the relevant epistemic agents (cf. Karttunen’s quote above), constructions with negated factive verbs commit the attitude holder to the belief that the proposition expressed by the complement is true (cf. Karttunen 1973, Gazdar 1979, Horton 1987, Horton and Hirst 1988). Thus, the behavior

73 The epistemic analysis of presuppositions can be found as early as Karttunen’s (1971a), who defines presuppositions not as propositions that are simply true in the actual world (cf. Kiparsky and Kiparsky 1971), but as propositions that are true or assumed to be true by an epistemic agent. A similar approach is advocated in Gazdar (1979), who analyzes the presupposed material as known by epistemic agents to be true. In Gazdar’s system this effect is achieved by embedding the presupposition under the epistemic operator K (for Know, adopted from Hintikka 1962), which returns the set of worlds compatible with what the speaker knows (Gazdar 1979:60, ft. 4). Thus, the presuppositions of the sentence in (i) are represented in (ii):
(i) From Gazdar 1979:72, ex. (48):
The Prince of Wales did not regret (washing his hands before the King of Buganda washed his).
(ii) From Gazdar 1979:72, ex. (49):
f_{p} (e_{1}) = \{K(There is a Prince of Wales), K(There is a king of Buganda), K(The King of Buganda washes his hands), K(The Prince of Wales washed his hands before the King of Buganda washed his),
where \( e_{1} = (i) \), \( f_{p} \) is a presupposition function, \( K \) is an operator (from Hintikka 1962).
of negated factive verbs with indicative complements in Bulgarian and their effect on the status of the embedded proposition is fully expected.

Negated epistemic verbs such as *ne vjarvam* ‘not believe’ differ from factive verbs in that they do not presuppose the truth of their complements (cf. Karttunen 1971b). Thus, the negation of the matrix verb commits the attitude holder to the belief that the proposition $p$ is false (cf. Hintikka 1962, Barnes 1969). From this perspective, the behavior of negated epistemic verbs in Bulgarian, and, specifically, the fact that they commit the attitude holder to the falsity of $p$, does not require any further explanation.

The pattern which is unusual in light of this discussion pertains to the lack of the presupposition projection in subjunctive complements selected by factive verbs. As the data in (80a), repeated below in (95), have shown, the speaker can use a factive verb in a context in which she is not committed to the truth of the embedded proposition. In fact, in (95), the attitude holder is weakly committed to the falsity of the proposition $p = ‘there is a leak in the oil tank’$ expressed by the complement. This behavior is atypical of constructions with factive verbs.

(96) Context: There is a mechanical problem with your boat. Your friend suggested that there is a leak in the oil tank. You just did a mechanical test. Because you are an inexperienced mechanic, you are not certain how to interpret the results. It seemed to you that the oil tank is not leaking, but you are uncertain. When someone asks you about the results of the mechanical exam, you say:

a. Ne otkrih [da ima teč v rezervoara].

NOT discover.PERF.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank

‘I didn’t discover there to be a leak in the oil tank.’

Gazdar’s ideas were further developed in Horton (1987), and Horton and Hirst (1988), who analyze presuppositions as beliefs of epistemic agents, and not simply as facts. Since in this dissertation I am primarily concerned with the question of how attitudes of epistemic agents affect the distribution of mood, I adopt the epistemic view on presuppositions. This is a fairly standard assumption in the contemporary semantic literature on propositional attitude verbs (cf. Karttunen 1974, Heim 1992, von Fintel 1999, Iatridou 2002).
b. # Ne otkrih [če ima teč v rezervoara].
NOT discover.PERF.1SG.PAST that have.3SG.PRES leak in oil.tank
‘I don’t believe that there is a leak in the oil tank.’

Internet examples provide further support for the claim that negated factive verbs with subjunctive complements do not give rise to presupposition projection but instead signal a weaker epistemic commitment on the part of the attitude holder. (97) is an extract from an interview with a Bulgarian district attorney. When asked about the alleged lawsuits filed against a famous Bulgarian politician, the prosecutor uses the construction of the form I don’t know SUBJ S, where the embedded sentence S expresses the proposition $p = ‘there are lawsuits against X’. The function of this construction is to communicate uncertainty about the status of $p$, as the preceding and the following discourse shows.

(97) From

Journalist: -A kakvi dela ima za XYZ i sreštu A.B. v prokuraturata? […]
‘What cases does the prosecution have against XYZ and A.B?’

Prosecutor: - Ne moga da kaža sas sigurnost,
NOT can.1SG.PRES SUBJ say.PERF.1SG.PRES with certainty
no njamam pone ne znaja da ima dela
but not.have at.least NOT know.IMPERF.1SG.PRES SUBJ be.3SG.PRES cases
sreštu A.B. v momenta na proizvodstvo v prokuraturata.
against AB at moment in progress in prosecution
Kazvam tova s visoka stepen na neopredelenost, […]
say.IMPERF.1SG.PRES this with high degree of indeterminacy.
‘I cannot say with certainty, but it looks like I don’t have, or, at least I don’t know that there are lawsuits filed against A.B. I’m saying this with a high degree of indeterminacy.’

The preceding and the following sentences, that translate into English as ‘I cannot say with certainty’, and ‘I’m saying this with a high degree of indeterminacy’, overtly manifest the attitude holder’s uncertainty and support the observation that the propositions expressed by the subjunctive complements of factive verbs do not project.

This discussion raises the question of how the lack of the presupposition projection in complements of negated factive verbs should be characterized. In Karttunen’s (1973) terms the subjunctive operator behaves like a “plug”; it blocks the presupposition from projecting. For comparison, promise in (98) is a plug. It prevents the presupposition that there is a king of France from becoming the presupposition of the main sentence.

(98) From Karttunen (1973a:174), ex. (7a):
Harry has promised Bill to introduce him to the present king of France.
(Does not presuppose that the king exists.)

The question of why presuppositions are suspended in the cases when they are expected to project has received a significant amount of attention in the literature (cf. Beaver 2004, Roberts et al. 2009, Simons et al. 2011). A literature overview shows that the presupposition suspension is a common phenomenon. Thus, Kiparsky and Kiparsky (1970) observe that the sentence I don’t know that this isn’t our car “can be given a non-factive interpretation” (Kiparsky and Kiparsky 1970:148, ft. 4). In his detailed study, Beaver (2004) provides numerous examples from the web that show that presupposition cancellation is a common phenomenon, which occurs in constructions with different factive verbs, including be aware, notice, and discover, shown in (99) – (101).

(99) Beaver (2004:6), ex. (5)
I am not aware that any community has a right to force another to be civilised.
She is so bright and amusing and now seems perfectly happy, and is not only devoted to Archie and Quentin but is very wise in the way she takes care of them. Quentin, under parental duress, rides Algonquin every day. Archie has just bought himself a football suit, but I have not noticed that he has played football as yet.

Theodore Roosevelt, Letter to Kermit Roosevelt, Oct. 15, 1904

If I discover that your work is plagiarized, I will be forced to notify the Dean.

Beth Berkowitz, Requirements, C1001 – Literature Humanities; Section 52.

While the question of the mechanisms responsible for the projection cancellation in subjunctive complements of negated factive verbs is beyond the scope of this dissertation, I suggest that this puzzle could be solved within the framework proposed by Roberts et al. (2009) and Simons et al. (2011). The authors propose that the projection properties of the proposition $p$ depend crucially on the status of the targeted material in discourse, specifically, on whether $p$ expresses at-issue or not-at-issue content. According to Roberts et al. (2009), “all and only those implications of (embedded) sentences which are not-at-issue relative to the Question Under Discussion in the context have the potential to project” (2009:6, ex. (12a)). The Bulgarian data that I present below suggest that propositions expressed by subjunctive complements of negated factive verbs consistently express at-issue content, while propositions expressed by indicative complements of negated factive verbs are usually not-at-issue.

In (102), the proposition $p = \text{‘there is a leak in the oil tank’}$, expressed by the embedded subjunctive complement, does not become the presupposition of the matrix sentence. The projection suspension might be explained by the fact that the content of the embedded sentence directly addresses the question under discussion, which, in the
context in (102), is whether the oil tank is leaking.

(102) Context: There is a mechanical problem with your boat. Your friend suggested that there is a leak in the oil tank. You just did a mechanical test. It seemed to you that the oil tank is not leaking. Because you are an inexperienced mechanic, you are not entirely certain whether the oil tank is leaking. When someone asks you whether the oil tank is leaking, you say:

Ne otkrih [da ima teč v rezervoara].

‘I didn’t discover there to be a leak in the oil tank.’

Moreover, additional support for the assumption that the proposition $p$ expressed by the embedded subjunctive complement in (102) is at-issue comes from the fact that $p$ can be directly addressed by the interlocutors (cf. the assent/dissent tests discussed in the literature on evidentials Faller 2002, Matthewson et al. 2008, Lee 2010). In (103b), the speaker A denies the proposition $p = ‘there is a leak in the oil tank’$ expressed by the subjunctive complement in (103a), while the speaker B agrees with $p$ in (102c).

(103) Context: You and your friends are trying to determine what is causing the mechanical problem with the boat. You just did a mechanical test. It seemed to you that the oil tank is not leaking. Because you are an inexperienced mechanic, you are not entirely certain whether the oil tank is leaking. When someone asks you whether the oil tank is leaking, you say:

a. You: Ne otkrih [da ima teč v rezervoara].

‘I didn’t discover there to be a leak in the oil tank.’


‘I think you are wrong. There is a leak in the oil tank.’

c. Your friend B: Såglasen sâm. Njama teč v rezervoara.

‘I agree. There is no leak in the oil tank.’

In contrast, when a negated factive verb selects the indicative complement, as in (104a), the proposition $p = ‘there is a leak in the oil tank’$, expressed by the embedded clause,
becomes the presupposition of the whole sentence. This pattern can be explained with the assumption that in sentences such as (104a), the embedded proposition is not-at-issue. The data in (104b) and (104c) provide support for such a claim. Unlike (103), the proposition expressed by the indicative complement in (104a) fails the assent/dissent test, i.e. it cannot be directly addressed by the interlocutors. The sentence that directly addresses the status of the proposition $p = \text{‘there is a leak in the oil tank’}$ in (104b) is infelicitous in the given context. What can be directly addressed in such a context is the result of the test performed by the speaker, i.e. the fact that she did not discover the problem (104c). These data suggest that in the sentence with the indicative complement (104a), the action denoted by the matrix verb is at-issue. The embedded proposition $p = \text{‘there is a leak in the oil tank’}$ is not-at-issue, and, therefore, projects.

(104) Context: You are taking a class on boat maintenance. As part of the exam, you need to check the boat and determine whether it has any problems. You examined the boat and didn’t find any problems. However, as it turned out there is a leak in the oil tank that you didn’t notice. When you do a self-assessment at the end of the exam, you say:

a. You: Ne otkrih, [če ima teč v rezervoara].
   ‘I didn’t discover that there is a leak in the oil tank.’

b. Your instructor: # Săglasen săm. Ima teč v rezervoara.
   Agree be.3SG.PRES have.3SG.PRES leak in oil.tank
   ‘I agree. There is a leak in the oil tank.’

c. Your instructor. Săglasen săm. Ti izobšto ne zablejaza teč.
   Agree be.3SG.PRES You at.all not notice.PERF.2SG.PAST leak
   ‘I agree. You didn’t even notice that there is a leak.’

This discussion suggests that the suspension of presuppositions in subjunctive complements of negated factive verbs is due to the status of these complements in discourse, and, specifically to the fact that they are at-issue. A more detailed study is
needed to show whether this observation holds for other subjunctive complements in Bulgarian.

To summarize, the discussion in this section provides additional evidence that supports the generalization about the correlation between the epistemic commitment of the attitude holder and the selection of mood in Bulgarian.

11.1.4 Summary

Sections 11.1.1 – 11.1.3 discussed the cases when a predicate selects both subjunctive and indicative complements. There are three groups of verbs that show the pattern of the double mood selection: (i) perception verbs such as čuvam ‘hear’, (ii) epistemic assessment verbs such as spomnjam si ‘remember’ and (iii) negated factive, and epistemic verbs such as ne znam ‘not know’ and ne vjarvam ‘not believe’. In all these cases, the choice of mood correlates with the epistemic commitment of the attitude holder. In the next section, I show that the analysis in terms of epistemic commitment can also successfully account for the patterns of unambiguous mood selection, specifically: (i) constructions with the indicative as the only choice, and (ii) constructions with the subjunctive as the only choice.

11.2 Constructions with the indicative as the only choice

As the data in Table 13 show, factive, emotive-factive, epistemic, and reportative verbs select indicative complements. Can we account for the observed pattern with the analysis where the choice of mood is dependent on the epistemic position of the attitude holder? In what follows, I show that in cases when the indicative is the only choice, the attitude
holder is committed to a particular epistemic position. Unlike the minimal pairs data, in cases when the selection of the indicative is unambiguous, epistemic commitment is part of the lexical meaning of the main verb.

11.2.1 Factive, emotive factive and epistemic verbs

Factive verbs such as *otrkivam* ‘discover’, emotive factive verbs such as *radvam se* ‘be glad’ and epistemic verbs such as *mislja* ‘think’ in Bulgarian select indicative complements only, as the data in (105) – (107) show:

(105) Otkrih, [# da /če ima teč v rezervoara].
    discover.1SG.PAST SUBJ/ that have.3SG.PRES leak in oil.tank
    ‘I discovered that there is a leak in the oil tank.’

(106) Radvam se, [# da /če ima teč v rezervoara].
    be.glad.1SG.PAST REFL SUBJ/ that have.3SG.PRES leak in oil.tank
    ‘I’m glad that there is a leak in the oil tank.’

(107) Mislja, [# da /če ima teč v rezervoara].
    think.1SG.PRES SUBJ/ that have.3SG.PRES leak in oil.tank
    ‘I think that there is a leak in the oil tank.’

In what follows I show that this selection pattern is due to the meaning of these verbs, and, specifically, to the fact that they commit the attitude holder to the belief that the proposition in the scope of the attitude verb is true.

Factive verbs such as *know, discover, realize, and be aware* are usually analyzed as encoding the truth of the proposition $p$ expressed by the complement sentence (Kiparsky and Kiparsky 1970, Karttunen 1971, Abusch 2002). According to Karttunen (1971a:3), “a sentence with a factive predicate indicates a belief on the part of the speaker in the truth of the complement sentence.” This generalization also holds for emotive factive verbs (cf. Karttunen 1971). In formal semantic analyses of factive and emotive factive verbs, the
commitment to the truth is encoded in the lexical meaning of verb, as I show in the next chapter. For now, the question that arises is whether we can assume that factive and emotive factive verbs encode a commitment to the truth on the part of the attitude holder in Bulgarian in the same way as they do in English. The Bulgarian data below show that factive verbs such as znam ‘know’ and otrkivam, ‘discover’, as well as emotive factive verbs such as radvam se ‘be glad’ and sâžaljavam ‘regret’, commit the attitude holder to the belief that the proposition expressed by the embedded clause is true. The example in (108) shows that the speaker cannot continue the sentence of the form I know S, where the embedded sentence S expresses the proposition $p = ‘there is a leak in the oil tank’$ with an assertion that she does not believe $p$.

\begin{align*}
\text{(108)} \quad & \text{Znam [če ima teč v rezervoara],} \\
& \text{Know.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank} \\
& \# \text{ no az ne vjarvam če ima.} \\
& \quad \text{but I NOT believe.IMPERF.1SG.PRES that have.3SG.PRES} \\
& \quad \text{Intended: ‘I know that there is a leak in the oil tank, but I don’t believe it.’}
\end{align*}

The sentence of the form I know S does commit the speaker to a strong epistemic position, specifically, to the truth of the proposition $p$ expressed by the complement sentence. As the example in (109) shows, the speaker cannot continue such a sentence by asserting that an alternative scenario is possible. In our example, the alternative scenario is the one in which the speaker is committed to the truth of $\neg p = ‘it is not the case that the oil tank is leaking’$.

\begin{align*}
\text{(109)} \quad & \text{Znam [če ima teč v rezervoara],} \\
& \text{Know.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank}
\end{align*}

75 Sometimes expressions of the form I know it but I still don’t believe it are used figuratively to show that the known fact is hard to believe or is surprising and unusual.
Other factive verbs, such as otrkivam ‘discover’ in Bulgarian show the same pattern as znam ‘know’, in that they are not compatible with a weaker epistemic position.

Emotive factive verbs are a subclass of factive verbs, i.e. they also commit the attitude holder to the belief that the proposition \( p \) expressed by the embedded sentence is true. They differ from factive verbs in that they encode as part of their lexical meaning an emotive reaction towards the proposition under discussion, such as joy, regret, sadness, fear, etc. As the data in (110) and (111) show, emotive factive verbs in Bulgarian commit the attitude holder to the belief that the proposition in the scope of the verb is true.

(110) Radvam se [če ima teč v rezervoara].
be.glad.IMPERF.1SG.PRES REFL that have.3SG.PRES leak in oil.tank

# no az ne vjarvam, če ima
but I NOT believe.IMPERF.1SG.PRES that have.3SG.PRES
Intended: ‘I’m glad that there is a leak in the oil tank, but I don't believe it.’

(111) Radvam se [če ima teč v rezervoara].
be.glad.IMPERF.1SG.PRES REFL that have.3SG.PRES leak in oil.tank

# no može i da njama.
but can and SUBJ not.have.3SG.PRES
Intended: ‘I’m glad that there is a leak in the oil tank but it is possible that there is no leak.’

The emotive factive verb sâžaljavam ‘regret’ expresses a different emotion than radvam se ‘be glad’. However, both verbs are similar in that they commit the attitude holder to the belief that the proposition \( p \) expressed by the complement sentence is true, as the examples in (112) and (113) show.
The last group of verbs considered here are epistemic verbs such as *believe* and *think*.

These verbs are traditionally analyzed as committing the attitude holder to the belief that the proposition in the scope of these verbs is true (cf. Hintikka 1962). The data in (114) and (115) confirm the same observation for the Bulgarian verbs *vjarvam* ‘believe’ and *mislja* ‘think’. As (114) and (115) show, such verbs are not compatible with a weaker epistemic commitment:

(114) *Misľja* [če ima teč v rezervoara].
think.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank
# no az ne vjarvam če ima
but I NOT believe.IMPERF.1SG.PRES that have.3SG.PRES
Intended: ‘I think that there is a leak in the oil tank, but I don’t believe that there is a leak.’

(115) *Misľja* [če ima teč v rezervoara].
think.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank
# no može i da njama.
but can and SUBJ not.have.3SG.PRES
Intended: ‘I think that there is a leak in the oil tank but it is possible that there is no leak.’

These data show that factive, emotive factive, as well as epistemic verbs in Bulgarian
commit the attitude holder to a particular epistemic position, specifically, to the belief that the proposition $p$ expressed by the embedded complement clause is true. Because the epistemic commitment is part of the lexical meaning of these verbs, we predict that these verbs are compatible with indicative and not with subjunctive complement. This is exactly what we find, as the data in Appendix A show. In the next section, I show how an analysis of mood selection in terms of epistemic commitment explains mood selection in complements of reportative verbs.

11.2.2 Reportative verbs

Reportative verbs such as kazvam ‘say’ and lăţa ‘lie’ can only select indicative complements in Bulgarian. I show below that the epistemic commitment analysis can be extended to explain the mood selection for this class of verbs as well.

Consider first the reportative verb lăţa ‘lie’. This verb, similarly to Karttunen’s negative implicative verbs such as decline (Karttunen 1971:8) commits the attitude holder to the falsity of the proposition $p$ in its scope. The Bulgarian data in (116) show that the speaker cannot continue the sentence of the form I am lying that $S$, where $S$ expresses the proposition $p =$ ‘there is a leak in the oil tank’ with the assertion that they believe $p$.

(116) Lăţa [če ima teč v rezervoara].

# no az vjarvam, [če ima].

Intended: ‘I am lying that there is a leak in the oil tank, but I believe that there is.’

The data in (116) can only be interpreted if we assume that lăţa ‘lie’ in Bulgarian
commits the speaker to the belief that the proposition \( p \) in the scope of the verb is false.

The data in (117) suggest that the commitment is strong.

(117) Lăža [če ima teč v rezervoara].
lie.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank

\# no može i da ima.
but can and SUBJ have.3SG.PRES

Intended: ‘I am lying that there is a leak in the oil tank but it is possible that there is a leak.’

Another reportative verb that deserves discussion in the context of this work is *kazvam* ‘say’. *Kazvam* ‘say’ behaves similarly to *lăža* ‘lie’ in that it selects indicative complements. Reportative verbs such as *say* are traditionally analyzed as non-veridical, i.e. they do not necessarily commit the attitude holder to the belief that the proposition \( p \) expressed by the embedded clause is true. Such an analysis is motivated by the situations when speakers e.g. assert the proposition \( p \) without necessarily being committed to its truth. Lies are an unfortunate reality of the real world. However, in recent semantic literature on *say*, a more idealized situation is assumed, i.e. the situation in which the Gracian maxim of quality is always observed, and, hence, there are no lies. Such an assumption, adopted in Ogihara (1989), Ogihara (1996), and Gennari (2003), allows one to account for the semantics of attitude reports and is now a standard assumption in semantic literature. This is an assumption that I will make for Bulgarian as well. While it is easy to imagine contexts in which attitude holders assert things that they believe are false, the data in (118) show that the sentence of the form *I am saying* \( S \), where \( S \) expresses the proposition \( p = \) ‘there is a leak in the oil tank’ cannot always be continued by an assertion that \( p \) is false. The native speaker’s reaction when presented with such
sentences is: “Why would you say that if you don’t believe it?”

(118) Kazvam [če ima teč v rezervoara].
say.IMPERF.1SG.PRES that have.3SG.PRES leak in oil.tank

? no az ne vjarvam če ima
but I NOT believe.IMPERF.1SG.PRES that have.3SG.PRES
Intended: ‘I think that there is a leak in the oil tank, but I don’t believe that there is.’

The data in (118) suggest that kazvam ‘say’ commits the speaker to a particular epistemic position, specifically, to the belief that the proposition $p$ expressed by the complement sentence is true. This is the assumption I make in the dissertation.

11.2.3 Strong epistemic commitment verbs siguren ‘certain’ and očvideno ‘obvious’

As Appendix A shows, strong epistemic commitment verbs, such as siguren ‘certain’ and očvideno ‘obvious’, select indicative complements only. The data in (119) and (120) shows that the subjunctive is not selected by these predicates.

(119) a. Sigurna sâm [če ima teč v rezervoara].
certain be.1SG.PRES that have.3SG.PRES leak in oil.tank
‘I’m certain that there is a leak in the oil tank.’

b. # Sigurna sâm [da ima teč v rezervoara].
certain be.1SG.PRES SUBJ have.3SG.PRES leak in oil.tank
Intended: ‘I’m certain that there is a leak in the oil tank.’

(120) a. Očvidno e [če ima teč v rezervoara].
obvious be.3SG.PRES that have.3SG.PRES leak in oil.tank
‘It is obvious that there is a leak in the oil tank.’

b. # Očvidno e [da ima teč v rezervoara].
obvious be.3SG.PRES SUBJ have.3SG.PRES leak in oil.tank
Intended: ‘It is obvious that there is a leak in the oil tank.’

The explanation of this selection pattern is in the lexical semantics of siguren sâm ‘be
certain’ and očvidno ‘be obvious’. Lexically these predicates signal that the speaker has firm belief in the proposition she reports is true. This is seen from the fact that constructions with siguren sâm ‘be certain’ and očvidno ‘be obvious’ are not compatible with a weaker epistemic position, as shown by (121) and (122).

(121) Sigurna sâm [če ima teč v rezervoara].
    certain be.1SG.PRES that have.3SG.PRES leak in oil.tank
    ‘I’m certain that there is a leak in the oil tank.’

    # no može i da njama).
    but can and SUBJ not.have.3SG.PRES
    Intended: ‘I am certain that there is a leak in the oil tank, and it is possible that there is no leak.’

(122) Očvidno e [če ima teč v rezervoara].
    obvious be.3SG.PRES that have.3SG.PRES leak in oil.tank
    ‘I’m certain that there is a leak in the oil tank.’

    # no može i da njama).
    but can and SUBJ not.have.3SG.PRES
    Intended: ‘It is obvious that there is a leak in the oil tank, and it is possible that there is no leak.’

The data in (121) and (122) suggest that siguren sâm ‘be certain’ and očvidno ‘be obvious’ encode epistemic commitment as part of their lexical semantics. Thus, we predict that these verbs would not be compatible with the subjunctive mood, which signals a weaker epistemic commitment.

Interestingly, the pattern of mood distribution in complements of siguren sâm ‘be certain’ and očvidno ‘be obvious’ changes under negation. When the matrix predicates siguren sâm ‘be certain’ and očvidno ‘be obvious’ are negated, the subjunctive-like complementizer dali ‘whether’, which morphologically consists of two recognizable parts, the subjunctive da plus a question particle li, can appear in the complement (123).
Indicative complements are not compatible with negated predicates *ne sâm siguren* ‘not be certain’ and *ne e očevidno* ‘not be obvious’ (124).

(123) a. Ne sâm sigurna [da-li ima teč v rezervoara].
    NOT be.1SG.PRES certain SUBJ-Q have.3SG.PRES leak in oil.tank
    ‘I’m not certain whether there is a leak in the oil tank.’

    b. # Ne sâm sigurna [če ima teč v rezervoara].
       NOT be.1SG.PRES certain that have.3SG.PRES leak in oil.tank
       ‘I’m not certain whether there is a leak in the oil tank.’

(124) a. Ne e očevidno [da-li ima teč v rezervoara].
    NOT be.3SG.PRES obvious SUBJ-Q have.3SG.PRES leak in oil.tank
    ‘It is not obvious whether there is a leak in the oil tank.’

    b. # Ne e očevidno [če ima teč v rezervoara].
       NOT be.1SG.PRES obvious that have.3SG.PRES leak in oil.tank
       ‘I’m not certain whether there is a leak in the oil tank.’

This reversed pattern of mood distribution under negation finds natural explanation within the proposal advocated here. Negated predicates *ne sâm siguren* ‘not be certain’ and *ne e očevidno* ‘not be obvious’ only weakly commit the speaker to a particular epistemic position. This is shown in (125) and (126). These sentences commit the speaker to the falsity of the proposition \( p = \text{‘there is a leak in the oil tank’} \) (the negative commitment is due to the effect of the matrix clause negation). However, the commitment is weak, and the speakers can continue the sentence with the assertion of an alternative state of affairs, i.e. asserting the possibility that the proposition \( p = \text{‘there is a leak in the oil tank’} \) is true.

(125) Ne sâm sigurna [da-li ima teč v rezervoara].
    NOT be.1SG.PRES certain SUBJ-Q have.3SG.PRES leak in oil.tank
    no može i da ima.
    but can and SUBJ have.3SG.PRES
    ‘I’m not certain whether there is a leak in the oil tank, but there might be.’
(126) Ne e očezidno [da-li ima teč v rezervoara].

It is not obvious whether there is a leak in the oil tank but there might be.

These data present additional support for the analysis of mood in terms of epistemic commitment.

11.2.4 Summary

In this section, I discussed semantic classes of verbs that select indicative complements only. The data from factive, emotive factive, epistemic, reportative, and some cognitive assessment verbs showed that these predicates commit the attitude holder to the belief that the proposition p expressed by the embedded clause is true/false. This observation made on independent grounds confirms the analysis of mood in terms of epistemic commitment presented in the previous chapter. The analysis predicts that the indicative is selected in the contexts when the attitude holder is committed to a strong epistemic position. In case of factive, emotive factive, epistemic, and some cognitive assessment verbs, strong epistemic commitment is encoded in the lexical semantics of these verbs. This is why these verbs can only select the indicative.

11.3 Constructions with the subjunctive as the only choice

As the discussion in chapter 10 has shown, volitional verbs such as iskam ‘want’ and directive verbs such as karam ‘urge’ select subjunctive complements only. In this section I show that the analysis of mood in terms of epistemic commitment can successfully
account for these cases. Specifically, I present data that suggest that volitional and directive verbs in Bulgarian encode preference for a particular course of events over the other, but because the events in question have not been realized (or settled) at the time of the attitude, the attitude holder cannot bear strong epistemic commitment to their truth/falsity. Thus, I predict that such verbs are compatible with the subjunctive but not with the indicative mood in the complement clause.

11.3.1 Volitional verbs

Volitional verbs such as *iskam* ‘want’ and *planiram* ‘plan’ select subjunctive complements only, as (127), repeated from (58) shows.

(127) *iskam* [da / # će ima tsvetja].
    want.IMPERF.1SG.PRES SUBJ/ that have.3SG.PRES flowers
    ‘I want there to be flowers.’

Volitional verbs signal that the attitude holder has preference for one course of events over the potential alternatives. Consider the context in (128)

(128) Context: You are planning to spend a weekend in a small hotel on the sea shore. You know that some rooms in the hotel are decorated with paintings from local artists, while other rooms are decorated with fresh flowers. When your sister asks you what kind of room you prefer, you say:

    *iskam* [da / # će ima tsvetja].
    want.IMPERF.1SG.PRES SUBJ/ that have.3SG.PRES flowers
    ‘I want there to be flowers.’

The construction with the verb *iskam* ‘want’ in (128) signals that the scenario in which there are flowers is preferred to its alternatives. However, because the state of affairs denoted by the embedded verb is located in the future, the speaker cannot be strongly committed to the truth of the proposition expressed by the embedded clause. The continuation in (129) shows that the construction of the form ‘I want S’, where the
embedded sentence \( S \) expresses the proposition \( p = 'there are flowers' \) can be felicitously used in a context when the attitude holder is not strongly committed to the truth of \( p \) and considers an alternative scenario as a possibility.

(129) Iskam [da / # če ima tsvetja].
want.IMPERF.1SG.PRES SUBJ/ that have.3SG.PRES flowers

... # no može i da njama.
but can and SUBJ not.have.3SG.PRES

'I want there to be flowers, but it is possible that there are no flowers.'

The empirical observation about the non-committal meaning of volitional verbs in Bulgarian confirms the analysis of volitional verbs in the theoretical literature.

In Karttunen’s classification, volitional verbs belong to the class of non-implicative verbs (Karttunen 1971b: 341). The latter do not commit the speaker (attitude holder) to the truth of the complement. Thus, the assertion that \( John \) hoped to solve the problem \( does \) not entail that \( John solved the problem \) (Karttunen 1971b:341-342). Farkas (2003) in her analysis of desiderative and volitional verbs points out that the status of the complement in the scope of these verbs is ‘non-decided’.

Heim (1992), von Fintel (1999) and Villalta (2008) adopt a similar position in their formal analyses of volitional verbs. Their analyses capture the intuition that volitional verbs signal that the attitude holder has a preference for one course of events over the other but he or she cannot be committed to the truth of the proposition in the scope of the verb. As von Fintel observed, “you can only want something of those fact you are not (yet) convinced” (Fintel 1994:117). I return to this observation in chapter 12, where I present the formal semantic analysis of volitional predicates. In the context of the current
discussion, the most important observation is that the inability of volitional verbs in Bulgarian to select indicative complements can be explained in terms of epistemic commitment, specifically, by the fact that volitional verbs cannot signal a strong epistemic commitment on the part of the attitude holder.

11.3.2 Directive verbs

Directive verbs such as karam ‘urge’ and zabranjavam ‘forbid’ uniformly select subjunctive complements in Bulgarian. Such verbs are not compatible with the indicative mood.

(130) Karam ja [da / # če tantsuva].
   urge.IMPERF.1SG.PRES her SUBJ that dance.IMPERF.3SG.PRES
   ‘I’m urging her to dance.’

(131) Zabranjavam i [da / # če tantsuva].
   forbid.IMPERF.1SG.PRES her SUBJ that dance.IMPERF.3SG.PRES
   ‘I forbid her to dance.’

Verbs belonging to this group as part of their lexical semantics encode that the attitude holder, i.e. the entity that issues the order has control over the situation and prefers one course of events over the other (cf. Culicover and Jackendoff 2005). Whether the attitude holder prefers the scenarios in which the proposition p in the scope of the embedding verb is true or false depends on the lexical semantics of the attitude predicate. Karam ‘urge’ lexically specifies that the worlds in which the proposition p is true are preferred, but zabranjavam ‘forbid’ lexically specifies that the worlds in which the proposition p is false are more desirable/preferred worlds as far as the attitude holder’s epistemic system is concerned.

Constructions with directive verbs are characterized by the fact that the events
denoted by the embedded complement are usually located in the future with respect to the
time of the attitude. Thus, when the main verb is in the present tense, the present tense
subjunctive is usually compatible with future-oriented adverbials such as utre
‘tomorrow’, but not with the past-oriented adverbials such as včera ‘yesterday’.

(132) Karam go [da pee utre /# včera].
urge.IMPF.1SG.PRES him SUBJ sing.IMPF.3SG.PRES tomorrow / yesterday
‘I am urging him to sing tomorrow/#yesterday.’

Future sentences involve metaphysical modality (e.g. Thomason 1970, Condoravdi
2002). Since the future is unsettled, it is impossible for an epistemic agent to know
which way it will be settled. Thus, in the examples in (132), the situations in which the
proposition $p = ‘he is singing tomorrow’$ is true, i.e. worlds in which the singing event is
realized are better worlds for the speaker; at the time of the utterance, it is impossible
for the attitude holder to know whether the world he is in will become a $p$ or a not-$p$
world at some later time. In Condoravdi’s words, “if an issue is taken by an agent not to
be settled, then metaphysical live options are also epistemic alternatives” (Condoravdi
2002:79). I argue that precisely because the state of affairs in future-oriented sentences is
unsettled, the speaker cannot be fully committed to the truth of $p$ at some later time, and
this is why the subjunctive is selected.

76 What kind of modality future sentences involve, i.e. epistemic or metaphysical, depends on what we
take the future to be. If the future is settled once and for all but we simply don’t know which way it is
settled, then the modality in future sentences is epistemic. However, if the future is unsettled (cf. The
concept of the branching future), then the modality of future-oriented sentences is metaphysical.
77 The semantics of volitional attitudes in terms of graded modality ranks worlds in which $p$ is true as
better worlds according to the speaker’s desires.
11.3.3 Verbs of weaker epistemic commitment

Verbs of weak epistemic commitment such as văzmožno e ‘be possible’ and sămnjavam se ‘doubt’ select subjunctive complements, as the data in (133) and (134) show.

(133) Văzmožno e [da / če ima teč v rezervoara].

possible be.3SG.PRES SUBJ that have.3SG.PRES leak in oil.tank

‘It is possible that there is a leak in the oil tank.’

(134) Sămnjavam se [da / če ima teč v rezervoara].

doubt.1SG.PRES REFL SUBJ / that be.3SG.PRES leak in oil.tank

‘I doubt that there is a leak in the oil tank.’

These groups of verbs lexically signal weaker epistemic commitment on the part of the attitude holder. The two predicates differ in terms of the status of the proposition in their scope. Văzmožno e ‘be possible’ weakly commits the attitude holder to the truth of \( p \), while sămnjavam se ‘doubt’ weakly commits the attitude holder to the falsity of \( p \). As the examples in (135) show, the attitude holder can continue the construction of the form ‘It is possible that \( S \)’, where \( S \) expresses the proposition \( p = ‘there is a leak in the oil tank’ \), by asserting an alternative course of events, i.e. the possibility that there is no leak in the oil tank.

(135) a. Văzmožno e [da ima teč v rezervoara].

possible be.3SG.PRES SUBJ have.3SG.PRES leak in oil.tank

... no može i da njama.

but can and SUBJ not.have.3SG.PRES

‘It is possible that there is a leak in the oil tank, and it is possible that there is no leak.’

b. Sămnjavam se [da ima teč v rezervoara].

doubt.1SG.PRES REFL SUBJ be.3SG.PRES leak in oil.tank

... no može i da ima.

but can and SUBJ have.3SG.PRES

‘I doubt that there is a leak in the oil tank, but it is possible that there is a leak.’
Because these verbs signal weaker epistemic commitment as part of their lexical meaning, we predict that they select the subjunctive. Interestingly, negation of the matrix clause predicate changes the selectional pattern. The data in (136) show that negated predicates such as *ne se sămnjavam* ‘not doubt’ select the indicative and do not select the subjunctive.

(136) Ne se sămnjavam [# da / če ima teč v rezervoara].
    NOT REFL doubt.1SG.PRES SUBJ that have.3SG.PRES leak in oil.tank
    ‘I don’t doubt that there is a leak in the oil tank.’

This pattern is expected in light of the proposed analysis: a non-negated *sămnjavam se* ‘doubt’ lexically encodes weaker epistemic commitment, and thus licenses the subjunctive. The negated predicate, on the other hand signals strong epistemic commitment. As the data in (138) show, such constructions cannot be continued with the assertion that an alternative course of events, i.e. situations where there is no leak in the oil tank, is possible (cf. (136) and (137)).

(137) Ne se sămnjavam [če ima teč v rezervoara].
    NOT REFL doubt.1SG.PRES that have.3SG.PRES leak in oil.tank
    ‘I don’t doubt that there is a leak in the oil tank.’
    ...
    # no može i da njama.
    but can and SUBJ not.have.3SG.PRES

Because *ne se sămnjavam* ‘not doubt’ encodes strong epistemic commitment, it can only select the indicative.

The last point that deserves further discussion is the inter-speaker variation that is observed in some cases. For example, some speakers find the construction of the form ‘It is possible IND p’ as marginally acceptable, hence the question mark in (133). Speakers...
who accept constructions with indicative complements as felicitous associate the indicative with strong epistemic commitment; they cannot continue the sentence with the indicative complement by asserting an alternative possibility, as the example in (138) below shows (cf. 135a).

(138) Văzmožno e [č è ima teč v rezervoara],
possible be.3SG.PRES that have.3SG.PRES leak in oil.tank
‘It is possible that there is a leak in the oil tank.’

# no može i da njama.
but can and SUBJ not.have.3SG.PRES
‘It is possible that there is a leak in the oil tank, and it is possible that there is no leak.’

These data show that with the indicative, the speakers are committed to the truth of \( p \), which is in accordance with the proposal presented in (77). Why verbs such as \( \text{văzmožno} \) e ‘be possible’ marginally select the indicative is open question.

11.3.4 Summary

In section 11.3, I discussed cases when the subjunctive is the only possible choice of mood in Bulgarian. I have shown that volitional, directive, and weak epistemic commitment verbs cannot commit the attitude holder to the truth of the proposition in the scope of the verb. In the case of volitional and directive verbs, this is due to the fact that the state of affairs is in the future with respect to the time of the attitude. Because the event in question is unsettled, it is impossible for an epistemic agent to know which way it will be settled. Hence, these constructions are not compatible with the meaning of the indicative, which requires epistemic commitment. In constructions with weak commitment verbs such as \( \text{văzmožno} \) e ‘be possible’ and \( \text{sămnjavam se} \) ‘doubt’, the meaning of the verb itself signals the lack of commitment. Such verbs are usually used in
contexts when the speaker does not have sufficient evidence to commit herself to the truth/falsity of \( p \), and this is the reason why such verbs can only select the subjunctive.

### 11.4 Summary of the proposal

The discussion in this chapter has shown that the analysis of mood in terms of epistemic commitment formulated at the end of chapter 10 can account for the pattern of mood selection in Bulgarian. In the cases when both subjunctive and indicative mood are possible, the subjunctive is triggered whenever the speaker has a weaker epistemic commitment to the truth/falsity of the proposition \( p \) in the scope of the attitude verb. The indicative is selected whenever the speaker is strongly committed to the truth/falsity of the complement. In constructions with the indicative as the only choice, i.e. in complements of factive, epistemic, emotive factive, and reportative verbs, the verb commits the attitude holder to the truth/falsity of the proposition \( p \) in the scope of the verb. In constructions with the subjunctive as the only choice, i.e. in complements of volitional, directive, and weak epistemic commitment verbs, the attitude holder is only weakly committed to the truth/falsity of the proposition \( p \) denoted by the embedded clause.

The discussion in this chapter makes clear that several components are responsible for the distribution of mood in Bulgarian. The distribution of mood in constructions when the indicative/subjunctive is the only choice suggests that the semantics of the matrix verb affects the pattern of mood selection. In constructions that allow both the indicative and the subjunctive mood, the distribution of mood cannot be explained in terms of the semantic properties of matrix verbs alone, and must be sensitive to the meaning of mood,
the indicative and the subjunctive, which are associated with strong and weak epistemic commitment, respectively. In the next chapter, I spell out the details of the formal analysis of mood in Bulgarian.
CHAPTER 12: FORMAL ANALYSIS OF MOOD IN BULGARIAN

In this chapter, I propose a formal semantic analysis of mood in Bulgarian that explains the distribution of the indicative and the subjunctive. The analysis makes explicit how context, lexical semantics of the selecting verb, as well as the meaning of mood, the subjunctive and the indicative, jointly determine the patterns of mood selection. Section 12.1 discusses the main assumptions and the core components of the formal analysis that I propose. Section 12.2 shows how the proposed analysis explains the three patterns of mood selection in Bulgarian. Section 12.3 concludes the chapter with the summary of the proposed analysis.

12.1 The meaning of propositional attitude verbs and the semantic contribution of mood

The discussion in the previous chapter has shown that subjunctive and indicative morphology in complement clauses does not simply reflect semantic properties of matrix verbs in Bulgarian but has its own semantic contribution. This is particularly clear when the same predicate can select both the indicative and the subjunctive. We observed that in such cases the distribution of mood in complement clauses is dependent on the context. I assume that the subjunctive and the indicative morphology contribute meaning that is specific for each type of context. Thus, the phenomenon of mood distribution in Bulgarian should be understood in terms of the meaning of matrix propositional attitude
verbs and the semantic contribution of the indicative and the subjunctive morphology.

This section presents the truth and the definedness conditions for propositional attitude verbs and for the indicative and the subjunctive mood.

12.1.1 The meaning of propositional attitude verbs

Propositional attitude verbs determine the nature of the relation that holds between the attitude holder, i.e. an epistemic agent denoted by the matrix clause subject, and the proposition in the scope of the verb (e.g. Hintikka 1969). The semantic analysis of propositional attitude verbs is based on the idea that the proposition in the scope of the verb is an object of the attitude and not necessarily a fact in the real world. Under such an approach, the sentence of the form *a believes p*, where *a* is an epistemic agent and *p* is the proposition believed by that agent, means that in all worlds compatible with what *a* believes, *p* is true. Hintikka’s idea can be formally represented as in (140).

\[(140) \text{From von Fintel and Heim (2007:18), ex. (29):} \]
\[
\llbracket \text{believe} \rrbracket^w_g = \lambda p \prec x, p \cdot \lambda x. \forall w' \text{compatible with } x \text{'s beliefs in } w, p(w') = 1
\]

According to (140), the expression of the form *x believes p*, where *x* is the epistemic agent under discussion, and *p* is the proposition in the scope of *believe* is true iff in all worlds *w'* compatible with *x*’s beliefs in *w*, *p* is true. All worlds compatible with what the relevant epistemic agent *a* believes in the world *w* are doxastically accessible worlds for *a* in *w*, abbreviated as DOX (*α, w*) (e.g. Hintikka 1969, Heim 1992). Using this notational convention, we can re-write the definition in (141) as follows:

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78 According to von Fintel and Heim (2009:17), the term *propositional attitude* was introduced in Russell (1940).
79 Model *M* is no longer listed as a parameter of interpretation.
80 DOX in the definitions of propositional attitude verbs, functions similarly to the epistemic modal base in a Kratzerian theory of modality.
(141) $[[\text{believe}]]^{w,g} = \lambda p <_x, p_. \lambda a . \forall w' \in \text{DOX} (a, w): p (w') = 1$

Hintikka’s idea that the truth of the proposition is evaluated with respect to the set of worlds characterized by the attitude straightforwardly applies to the analysis of other attitude verbs. Thus, if the main verb is *remember*, then the relevant possible worlds we need to consider to establish the relation between the proposition in the verb’s scope and the attitude holder are “all the possible worlds compatible with what he remembers” (Hintikka 1969, cited in von Fintel & Heim 2009:18). Hintikka’s analysis can be straightforwardly applied to propositional attitude verbs, such as *vjarvam* ‘believe’ and *znam* ‘know’, as I show below.

However, despite certain advantages of Hintikka’s proposal, his analysis is not sufficient to account for the meaning of verbs such as e.g. *want, glad, wish, be sorry*, as discussed in Heim (1992), von Fintel (1999). Consider Hintikka's analysis of *want* presented in (142):

(142) $[[\text{want}]]^{w,g} = \lambda p <_x, p_. \lambda x . \forall w' \in \text{Bul} (a, w), p (w') = 1$

where $\text{Bul} (a, w)$ is the set of worlds, *buletically* accessible at $w$; all worlds in $\text{Bul}$ are compatible with what $a$ wants in $w$.

According to (142), the sentence of the form *a wants p* means that in all worlds compatible with what the relevant epistemic agent *a* desires, the propositions *p* is true. The problem with such a definition is that the relation between the set of worlds compatible with the individual’s desires and the set of worlds compatible with what the relevant epistemic agents knows is unspecified. However, as Karttunen (1973) and Heim (1992) observed, there is a rather intimate relation between these two sets: the attitude holder’s desires are contingent on what she believes. For example, the sentence in (143)
with the matrix verb *want* is only felicitous if Patrick *believes* that he owns a cello.

(143) From Heim (1992:183), ex. (1)
Patrick wants to sell his cello.

Another problem with the analysis of *want* in (142), observed by Heim (1992) and recently discussed in Villalta (2008), is that it is ill-suited to account for the discrepancy between the attitude holder’s long term desires and his preferences in a particular situation. Thus, Hintikka’s analysis would predict that the sentence in (144) is true iff in all worlds compatible with what the attitude holder desires, she teaches on Tuesdays and Thursdays.

(144) From Heim 91992:195), ex. (33)
I want to teach Tuesdays and Thursdays next semester.

The problem is that (144) is also felicitous if the attitude holder has no desire to teach at all. However, knowing that she would have to teach, she prefers to teach on Tuesdays and Thursdays. The analysis of *want* in (142) cannot account for such cases.

This brief discussion shows that the semantics of *want* needs to make reference to the set of the attitude holder’s belief worlds. This intuition, which goes back to Karttunen (1974) and Gazdar (1979)\(^\text{(81)}\), is reflected in the formal analysis of *want* in the contemporary semantic literature (e.g. Heim 1992, Portner 1997, von Fintel 1999, Giannakidou 2009).

Consider the definedness and the truth conditions for the verb *want* in (145), from

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81 Karttunen points out that constructions with propositional attitude verbs, such as *believe, fear, think, want*, (Karttunen 1974:188-189), as well as *expect, think, assume, suspect, and hope* (cited in Heim 1992:183, from Karttunen 1973), “require that the subject of the main sentence be understood to have a set of beliefs that satisfy the presupposition of the complement” (Karttunen 1974:189). Thus, for the sentence with the matrix verb *fear* in (i) to be felicitous, the context must guarantee that John *believes* that Nixon will stop protecting his aides.

(i) From Karttunen (1974)
John fears that Nixon will stop protecting his aides.

(145) From von Fintel 1999:117, ex. (43)
\[
\llbracket \text{want}\rrbracket^k_{\varepsilon}(p)(\alpha)(w) \text{ is only defined if}
\]
a. \( f_i(\alpha, w) = \text{DOX}(\alpha, w) \), where “DOX(\alpha, w) is the set of worlds compatible with \( \alpha \)'s beliefs in \( w \)” (von Fintel 1999:116).

b. \( f_i(\alpha, w) \cap p \neq \emptyset \)
c. \( f_i(\alpha, w) - p \neq \emptyset \)

If defined, \( \llbracket \text{want}\rrbracket^k_{\varepsilon}(p)(\alpha)(w) = \text{True}, \text{iff } \forall w' \in \text{max}_{g_i(\alpha, w)}(f_i(\alpha, w)): w' \in p \)

The formal semantics of \textit{want} in (145) involves the two meaning components: a modal base \( f_i(\alpha, w) \) and an ordering source \( g_i(\alpha, w) \) (Heim 1992, von Fintel 1999). According to the definedness conditions in (145), the modal base is doxastic. This condition guarantees that what an individual wants is compatible with what she believes. This aspect of the analysis explains the presupposition in (143): Patrick can only want to sell his cello if he believes that he possesses one. The second major component of the analysis is the ordering source function, i.e. \( g_i(\alpha, w) \) which imposes a strict partial ordering on a set of worlds (146).

(146) From von Fintel 1999:115, (38)
For any set of propositions \( P \), we define a strict partial order \( <_p \):
\[
\forall w', w'' : w' <_p w'' \text{ iff } \forall p \in P \ w' \in p \rightarrow w'' \in p \text{ and }
\exists p \in P : \ w' \in p \& w'' \notin p
\]
\( w' \) is better than \( w'' \) according to \( P \), if all propositions that hold in \( w'' \) also hold in \( w' \) but some hold in \( w' \) that do not also hold in \( w'' \).

The selection function \( \text{max } P \), defined in (147), applies to the set of worlds in the modal base and selects worlds which are the best, as ranked according to the ordering source.

\[ ^{82} \text{The reader will notice that in von Fintel’s definition in (145) the modal base } f_i(\alpha, w) \text{ is a function from a word to a set of worlds (see von Fintel 1999:115, ex. (37)), and not to a set of propositions, as in a Kratzerian framework. In the analysis I present in section 12.2, I use a traditional approach and assume that a modal base is function from a set of worlds to a set of proposition. The exposition in this section is based on von Fintel (1999).} \]
For a given strict partial order \(<_p\) on worlds, define the selection function \(\max P\) that selects \(_p\) best worlds from any set \(X\):
\[
\forall x \subseteq W: \max_p (X): \{w \in X: \neg \exists w' \in X: w' <_p w\}.
\]

In the case of \textit{want}, the worlds in \(f_i (\alpha, w)\) are ranked according to the attitude holder’s preferences.

The truth conditions for \textit{want} in (145) specify that all the best worlds are the worlds in which the attitude holder’s desires are satisfied. The universal quantification comes from the meaning of the attitude verb (cf. Hintikka 1969, Ogihara 1996, Abusch 1997, von Fintel 1999 on the assumption that propositional attitude verbs introduce universal quantification over possible worlds).

The last pieces of the definition in (145) that requires further discussion, are the definedness conditions in (145b) and (145c), which specify the relation between \(f_i (\alpha, w)\) and the proposition \(p\). Jointly, they guarantee that some but not all worlds in \(f_i (\alpha, w)\) are \(p\) worlds. Why is this condition necessary? The definedness condition in (145a) alone predicts that the belief that \(p\) commits the attitude holder to the desire that \(p\) (von Fintel 1999:117). This is an incorrect prediction: there are certainly cases that we believe to be true, but which we don’t want to be true. I believe that my best friend broke her leg, but I would dearly want this to never have happened. This undesirable prediction of the analysis can be avoided if we assume that the speaker does not know for sure whether \(p\) is true or not, that is, some of her belief worlds are \(p\) worlds and some worlds are not-\(p\) worlds. This is exactly what the truth conditions in (145b) and (145c) do. These definedness conditions also capture the intuition that “you can only want something of
whose fact you are not (yet) convinced” (Fintel 1994:117).83

This discussion shows that some propositional attitude verbs such as *want*, for example, cannot be defined in terms of the accessibility relations determined by the attitude and require a more elaborate semantic analysis. Current analyses of propositional attitude verbs make heavy usage of DOX, i.e. the definedness conditions proposed for attitude verbs make reference to the set of worlds compatible with the attitude holder’s beliefs (e.g. Heim 1992; Portner 1997, Giannakidou 2009 on *want*; Iatridou 2002 on *wish*; von Fintel 1999 on *want, wish, be sorry, be glad*; Katz 2002 on *expect*; Abusch 2002 on factive verbs). The generalizations emerging from these analyses are that, for one thing, the relation between the worlds compatible with the particular attitude, such as desire, and the attitude holder’s belief worlds needs to be defined. Second, different propositional attitude verbs would presuppose different relations between the modal base and the proposition $p$ in the scope of the attitude verb. For example, the definedness conditions for *want* specify that not all worlds in $f; (\alpha, w)$ are $p$ worlds. On the other hand, epistemic verbs, such as *believe*, would specify that all worlds in the set of worlds with respect to which the proposition $p$ is interpreted are the worlds in which $p$ is true. Finally, the attitude predicates would also differ with respect to the ordering sources they involve. Thus, according to von Fintel (1999), verbs such as *want, be glad, be sorry, regret* require an ordering source based on the attitude holder’s preferences, while verbs such as *expect, amazed, surprised* require an ordering source that takes into consideration likelihood or expectation (von Fintel 1999:114). Thus, we expect each attitude verb to differ with respect to

83 In the semantic literature *want* is often analyzed as a future-oriented verb, i.e. the event denoted by the verb in its scope is realized in the future. Since the future is unsettled (e.g. Thomason 1970, Condoravdi 2002), there is no way for an epistemic agent to know which way it will be settled (Condoravdi 2002).
what kind of modal base and ordering source it requires. As von Fintel (1999:116) observes, “The semantics of attitude predicates will be sensitive to these two parameters [i.e. the modal base and the ordering source, AS] and in turn the lexical semantics of an attitude can specify which kind of parameters it needs to work with. Since there are plenty of different kinds of attitudes, there must be plenty of different kinds of modal bases and ordering sources.” I return to this observation below, when I develop a semantic analysis of attitude verbs in Bulgarian. Before that, I discuss the meaning of the subjunctive and the indicative operator in Bulgarian.

12.1.2 The meaning of the subjunctive and the indicative

In this section, I discuss the meaning contribution of the indicative and the subjunctive mood. In section 12.1.2.1, I show that the strength of epistemic commitment is not-at-issue, while the information expressed by the embedded clause, to which I refer to as the prejacent implication, is at-issue. In section 12.1.2.2, I formulate the meaning of mood operators, which is based on the analysis of mood proposed by Matthewson (2010b).

12.1.2.1 The strength of epistemic commitment as not-at-issue

The empirical generalizations established in the previous chapter showed that the subjunctive signals a weaker epistemic commitment compared with the indicative. There are several ways in which this generalization can be formalized. Within the framework of modal semantics, developed in Kratzer (1981), the strength of a modal statement depends on the quantificational force of the modal. Thus, necessity modals such as *must* have a universal quantificational force, while possibility modals such as *may* have existential
quantificational force, as the definitions in (148) show:

\begin{align*}
\text{(148)} \quad & \text{From Portner (2009:52), ex. (74)} \\
& \text{a. If } N \text{ is a necessity modal, then } [N \beta]^{w,c,f} = 1 \text{ iff for all } v \in \cap f(w), [\beta]^{v,c,f} = 1 \\
& \text{b. If } P \text{ is a possibility modal, then } [P \beta]^{w,c,f} = 1 \text{ iff for some } v \in \cap f(w), [\beta]^{v,c,f} = 1
\end{align*}

According to (148a), a construction with a necessity modal \( N \) and a proposition \( \beta \) in its scope is true with respect to the world \( w \), context \( c \), and the modal base \( f \), iff in all worlds \( v \) belonging to \( \cap f(w) \), the proposition \( \beta \) is true. According to (148c), a construction with a possibility modal \( P \) and a proposition \( \beta \) in its scope is true with respect to the world \( w \), context \( c \), and the modal base function \( f \), iff is true in some worlds \( v \) belonging to \( \cap f(w) \).

Since constructions with subjunctive complement clauses are consistently associated with a weaker epistemic commitment than that with indicative complements, it is plausible to assume that the subjunctive operator encodes, as part of its truth-conditional meaning, a weaker quantificational force than the indicative operator. Thus, we could assume that the subjunctive operator should be analyzed on par with epistemic possibility modals such as \( \mbox{vāzmožno} \) ‘possible’. However, this intuitive assumption runs into an immediate problem once we consider the sentence in (149):

\begin{align*}
\text{(149) Ne otkrih [da ima teč v rezervoara].} \\
\text{NOT discover.PERF.1SG.PAST SUBJ have.3SG.PRES leak in oil.tank} \\
\text{‘I didn’t discover that there is a leak in the oil tank.’}
\end{align*}

The example in (149) does not mean ‘I didn’t discover that it is possible that there is a leak in the oil tank’, thought exactly this type of reading would be predicted if we assume that the subjunctive operator encodes a weak quantificational force as part of its truth conditional meaning.\footnote{I’m grateful to Sabine Iatridou for pointing this out to me.}

\[ \text{I'm grateful to Sabine Iatridou for pointing this out to me.} \]
A similar observation is made in Portner (1997), who discusses the properties of the modal verb *may* in complements of propositional attitude verbs such as *wish* and *pray* and modal verbs such as *possible*, as shown in (150). (My discussion of Portner (1997) follows closely the discussion in Matthewson (2010b:24-25).)

(150) From Portner (1997:190), ex. (42b-d)
   a. Jack wishes that you may be happy.
   b. I pray that God may bless you. (from Palmer 1990)
   c. It is possible that Sue may win the race.

Portner observes that in these examples “*may* does not have modal force of its own: the sentence [in (103c)] does not mean that it’s possible that it’s possible that Sue wins the race” (Portner 1997:190). Portner accounts for these data with the assumption that the mood-indicating *may* does not lexically encode modal force but restricts the domain of quantification specified by the propositional attitude verb in the matrix clause by presupposing that the proposition in its scope is possible, as far as the belief worlds of the attitude holder are concerned. His analysis is shown in (151):

(151) From Portner (1997:201), ex. (75)
   For any reference situation $r$, modal force $F$, and modal context $R$,
   a. $\llbracket \text{may}_{\text{dep}}(\varphi) \rrbracket_{r,F,R}^{}$ is only defined if $\varphi$ is possible with respect to $\text{Dox}_\alpha(r)$, where $\alpha$ is the denotation of the matrix subject.
   b. When defined, $\llbracket \text{may}_{\text{dep}}(\varphi) \rrbracket_{r,F,R}^{} = \llbracket \varphi \rrbracket_{r,F,R}^{}$

As the definition in (151) shows, the intended interpretation comes from the definedness conditions and not from the truth-conditional meaning of *may*. In what follows, I refine this observation in light of the recent literature on projective meaning (Roberts et al. 2009). I show that the strength of commitment is part of the conventional meaning that is not-at-issue. As discussed in section 5.4, at-issue information constitutes the main point of the utterance, while not-at-issue information can be analyzed as backgrounded. The
application of the standard tests for (not)-at-issueness shows that the strength of epistemic 
commitment cannot address the question under discussion (QUD) (Roberts 1996), and 
fails the challengeability test, as the data in (152) and (153) show. In (552), QUD is the 
strength of epistemic commitment on the part of the attitude holder, and neither the 
construction with the subjunctive complement (152a), nor the construction with the 
indicative complement (152b) can be used to address QUD. These data argue that the 
strength of epistemic commitment is not-at-issue.

(152) Context: Your brother has an important entrance exam to the music academy 
next week. Your mom calls you on the phone to check what your brother is doing. 
You tell her that he is in his room and is practicing singing. When she asks you 
how certain you are that your brother is singing, you say:

a. [context: you are not entirely sure whether your brother is singing]:

# Čuvam go [da pee].
hear.IMPERF.1SG.PRES him SUBJ sing.IMPERF.3SG.PRES
‘I hear him singing.’

b. [context: you are sure that your brother is singing]:

# Čuvam [če pee].
hear.IMPERF.1SG.PRES that sing.IMPERF.3SG.PRES
‘I hear him singing.’

The example in (153) shows that the strength of epistemic commitment cannot be directly 
challenged by interlocutors. In (153), the second interlocutor believes that the attitude 
holder, Ivan, has a stronger commitment than reported by the speaker in (153a). However, 
he cannot challenge this information, as the infelicity of (153b) shows.

(153) Context: There is a mechanical problem with your boat. Some people suggested 
that there is a leak in the oil tank. You know that Ivan thinks that there is no leak 
in the oil tank, but he is not sure. When someone asks you about Ivan’s opinion, 
you say (a). Your interlocutor, who thinks that Ivan is convinced that there is no 
leak in the oil tank, says (b):

a. Ivan ne vjarva [da ima teč v rezervoara].
Ivan NOT believe.IMPERF.3SG.PRES have.3SG.PRES leak in oil.tank
‘Ivan does not believe there to be a leak in the oil tank.’

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Unlike information about the strength of epistemic commitment, the proposition expressed by the embedded clause can address QUD and passes the challengeability test, as the data in (154) and (155) show. In (154), QUD is what your brother is doing. Both the construction with the indicative and with the subjunctive complement can be used to address this question. (The choice between the indicative and the subjunctive depends on the strength of commitment).

(154) Context: You and your brother are staying home. While working in your study, you hear singing from your brother’s room. When your mom calls you on the phone and asks you what your brother is doing, you say:

a. [context: you are not entirely sure whether he is singing]:

Čuvam go [da pee].

‘I hear him singing.’

b. [context: you are sure that he is singing]:

Čuvam [če pee].

‘I hear him singing.’

In (155), the second interlocutor challenges the information expressed by the embedded clause, i.e. the proposition \( p = \text{‘My brother is singing’} \).

(155) You and your brother are staying home. While working in your study, you hear singing from your brother’s room. It must be your brother who is singing, but you are not entirely sure. When your mom calls you on the phone and asks you what your brother is doing, you say (a). Your sister, who is near by, says (b):

a. Čuvam go [da pee].

‘I hear him singing.’
b. Tova ne e vjarno.
   This NOT be.3SG.PRES correct.
Tova, koeto čuvaš, e MTV.
That what hear.2SG.IMPERF.PRES be.3SG.PRES MTV
‘This is not true. What you hear is the MTV.’

The data in (152) – (155) suggest that information expressed by the embedded clause is at-issue, while the strength of epistemic commitment is not-at-issue. Thus, I agree with Portner (1997) and Matthewson (2010b) that the strength of commitment does not constitute the main point of the utterance with the subjunctive mood. My analysis here shows that the strength of commitment it is part of conventional meaning of the subjunctive that is not-at-issue.

In the next section, I discuss the meaning of the indicative and the subjunctive mood.

12.1.2.2 The meaning of the subjunctive and the indicative in Bulgarian

I first discuss Matthewson’s (2010b) analysis of the subjunctive in St’át’imcets, on which my proposal is based.

12.1.2.2.1 Matthewson’s (2010b) analysis of the subjunctive in St’át’imcets

Matthewson (2010b) observes that the subjunctive operator in St’át’imcets “restricts the domain of quantification of a c-commanding modal, so that the interpretation which obtains is weaker than pure necessity” (Matthewson 2010b:30). Thus, whenever the subjunctive marker is used in St’át’imcets – the subjunctive morpheme appears in the scope of modal operators, such as the deontic modal ka, a future modal kelh, an inferential evidential k’a (Matthewson 2010b:6-12), but not in the scope of propositional attitude verbs –
the sentence has a weaker reading compared to its subjunctive-less counterpart. Consider first a sentence with the deontic modal *ka* in (156a), whose modal parameters are listed in (156b):

(156) From Matthewson (2010b:31), ex. (59)
   a. gúy’t=ka ti=sk’ük’wm’it=a
       sleep=deon det=child=exis
       ‘The child must/should/can sleep.’
   b. Modal parameters:
      Modal base (presupposed to be circumstantial): Worlds in which the relevant facts about our family are the same as in the actual world.
      Ordering source (presupposed to be normative): The best worlds are those in which my desire for an early night is fulfilled.
      Choice function: Picks out a potentially proper subset of the best worlds.
      Universal quantification: In all worlds in the subset of the best worlds picked out by the choice function, the child sleeps.

According to (159b), the modal base is circumstantial. The ordering source in (159b) specifies that the best worlds are the worlds in which the speaker’s desire for an early night is fulfilled. Following the analysis of modal verbs in St’át’ímcets, developed in Rullmann et al. (2008), Matthewson assumes that a choice function applies to the set of worlds, as specified by the modal base and the ordering source, and picks out a (proper) subset of that set. In (156), the choice function can either pick up a set that is identical to the set determined by the modal base and the ordering source, or it can pick up a subset of the original set. The universal quantificational force then applies to the set picked up by the choice function. In this analysis, the quantificational force of the modal sentence depends on the relation between the set picked up by the choice function and the original set specified by the modal base and the ordering source. If the set of worlds picked by the choice function is the same as the one provided by the modal base and the ordering source, the sentence in (156) would have a necessity reading, i.e. *the child must sleep*. If
the choice function picks up a smaller subset, then the construction in (156) would have a weaker reading, e.g. *the child should sleep*. This analysis correctly captures the fact that (156a) denotes a proposition, i.e. *the child sleeps*, whose modal force ranges from necessity to weak possibility. This effect is due to the fact that quantificational force in St’át’imcets modals is not lexically specified, but depends on the context (Matthewson, Rullmann & Davis 2007, Rullman, Matthewson and Davis 2008, Matthewson 2010b).

Consider now a sentence with the subjunctive marker ás in the scope of the deontic modal *ka* in (157). The sentence in (157) has a weaker meaning compared to (157). The force of the sentence in (157) is paraphrasable with the verb *hope*, as shown in the translation.

(157) From Matthewson (2010b:32), (60)

a. guy’t=ás=ka ti=sk’úk’wm’it=a sleep=3subj=deon det=child=exis

‘I hope the child sleeps.’

b. Modal parameters:

- **Modal base (presupposed to be circumstantial):** Worlds in which the relevant facts about our family are the same as in the actual world.
- **Ordering source (presupposed to be normative):** The best worlds are those in which my desire for an early night is fulfilled.
- **Choice function** (must pick out a proper subset of the best worlds, to avoid a contradiction with the presupposition of the subjunctive): The very best worlds are those in which my spouse’s desire for an early night is also fulfilled.
- **Universal quantification:** All the *very best* worlds are worlds in which the child sleeps.

Matthewson’s analysis accounts for the differences between (156) and (157) as follows. The modal base and the ordering source in (157) are the same as in (156). The derivation in (157) proceeds as in (156) up to the point when the choice function applies. Matthewson assumes that the subjunctive presupposes that not all worlds in the set of best
worlds are $p$ worlds. This is guaranteed by the definition in (158), where $h(w)$ is the modal base function, $\cap h(w)$ is the set of worlds derived from intersecting propositions $\varphi$ in $h(w)$, $g(w)$ is the ordering source, and $max$ is the function that returns best worlds.

(158) From Matthewson (2010b:34), (65)

\[
\llbracket \text{SUBJ } \varphi \rrbracket^c, w \text{ is only defined if } \exists w' \in \text{max}_{g(w)}(\cap h(w)) [\varphi(w')=0]
\]

When defined, $\llbracket \text{SUBJ } \varphi \rrbracket^c, w = \lambda w'. \llbracket \varphi \rrbracket^c, w'$

According to (158), “the subjunctive is only defined if there is at least one world $w'$ in the set of best worlds in the modal base, as defined by the ordering source, such that $\varphi$ is false in $w'$” (Matthewson 2010b: 34).

This assumption accounts for a weaker reading of (157) as follows. The definedness condition of the subjunctive in (158) guarantees that the set of best worlds contains not-$p$ worlds, i.e. the worlds in which $p$ is false. Not-$p$ worlds in (157) are the worlds in which the child does not sleep. Among the worlds in which the child does not sleep there are still some worlds in which the speaker’s desire for an early night is fulfilled because, for example, her spouse is looking after the child. These worlds are ranked as better worlds by the ordering source. Since the best worlds contain not-$p$ worlds, the set of worlds picked up by the choice function in (157) must be a proper subset of the best worlds $\text{max}_{g(w)}(\cap h(w))$. In this set, i.e. the set of the very best worlds, the proposition the child sleeps is true and both the speaker’s and the speaker’s spouse desire for an early night is fulfilled. Because the set of the very best worlds is much smaller than the set of the worlds in the modal base, the construction in (156) has a weaker reading compared to (157).
12.1.2.2 The meaning of mood operators in Bulgarian

This background allows me to formulate the meaning of the subjunctive and the indicative operators in Bulgarian. Following Matthewson’s (2010b) analysis of the subjunctive in St’át’imcets, I propose the following meaning for the subjunctive in Bulgarian.

(159) The meaning of the subjunctive operator in Bulgarian, adapted from Matthewson (2010b:34), (65)
For any context $c$, worlds $w, w'$, proposition $p$, modal base function $f$, and attitude holder $\alpha$, where $\alpha = \text{matrix clause subject}$
\[
\llbracket \text{SUBJ } p \rrbracket \quad \text{is defined iff} \quad \exists w' \in \cap f(\alpha)(w)[w' \notin \llbracket p \rrbracket^{c, f, g}]
\]
When defined, $\llbracket \text{SUBJ } p \rrbracket^{c, f, g} = \llbracket p \rrbracket^{c, f, g}$

According to (159), the sentence with the subjunctive operator is defined iff there is at least one world in $\cap f(\alpha)(w)$, the set of worlds derived from intersecting propositions in the modal base, in which the proposition $p$ in the scope of the subjunctive is false.\(^85\) The meaning of the Bulgarian subjunctive is different from the subjunctive in St’át’imcets in that it places a requirement on the set of worlds in $\cap f(\alpha)(w)$ and not on the set of the best worlds $\max_{w \in \cap h(w)}$. The difference is due to the fact that in St’át’imcets the subjunctive appears in the scope of modal verbs whose modal force can vary, and, whose analysis, as a consequence, requires the choice function. In Bulgarian, the subjunctive appears in complements of propositional attitude verbs. Since the force of the governing attitude verb is lexically specified, their analysis does not require a choice function.

\(^85\) The constraint on the domain of quantification, introduced by the subjunctive, is formulated in terms of definedness conditions. Definedness conditions pertain to presuppositional content of linguistic expressions (cf. Heim 1982, 1983). Since the contribution of the mood operator is not presupposed, but projected — information contributed by the mood is new — the usage of definedness condition is not exactly accurate here. However, the question about the status of projective but not presupposed information is beyond the scope of my dissertation (see Potts 2005, Roberts 2006, Roberts et al. 2009, Simons et al. 2010).
Turning now to the meaning of the indicative operator in Bulgarian, I propose the definition in (160):

(160) The meaning of the indicative operator in Bulgarian:\(^{86}\)
For any context \(c\), worlds \(w, w'\), proposition \(p\), modal base function \(f(\alpha)(w)\), and attitude holder \(\alpha\), where \(\alpha = \text{matrix clause subject}:\)
\[
\| \text{IND } p \|_{c, f, g} \text{ is defined } \iff \forall w' \in \cap f(\alpha)(w)[w' \in \| p \|_{c, f, g}] \lor \\
\forall w' \in \cap f(\alpha)(w)[w' \notin \| p \|_{c, f, g}]
\]
When defined, \(\| \text{IND } p \|_{c, w} = \| p \|_{c, f, g}\)

According to (160), the sentence with the indicative operator is defined iff in all worlds \(w'\) in \(\cap f(\alpha)(w)\) the proposition \(p\) is true, or iff in all worlds \(w'\) in \(\cap f(\alpha)(w)\) the proposition \(p\) is false. This definition captures the observation that the indicative is selected whenever the set of worlds compatible with what the attitude holder’s believes is homogenous – all worlds in this set are either \(p\) worlds or not-\(p\) worlds. The value of \(p\), i.e. whether the worlds in the modal base are \(p\) or not-\(p\) worlds depends on the lexical semantics of the matrix verb and on the presence/absence of negation on the main verb.

With these tools in hand, I now turn to the analysis of the three patterns of mood selection identified in the previous chapter.

12.2 The analysis

In section 12.2.1, I discuss constructions with the indicative as the only choice. Section 12.2.2 discusses constructions with the subjunctive as the only choice, and section 12.2.3 explains the pattern of the double mood selection.\(^{87}\)

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\(^{86}\) I am grateful to Craige Roberts for discussions.

\(^{87}\) I thank Judith Tonhauser, Yusuke Kubota, and Chris Worth for their feedback and comments. The usual disclaimer applies.
12.2.1 Constructions with the indicative as the only choice

As the discussion in chapter 11 has shown, non-negated factive, emotive factive, epistemic and reportative verbs as well as strong epistemic commitment verbs select indicative complements only. In this section, I show how the proposed analysis can account for the distribution of mood in the scope of these verbs. I specifically focus on the construction with an epistemic verb *vjarvam* ‘believe’. The analysis I propose here straightforwardly applies to other classes of predicates that select the indicative mood only.

The examples in (161) show that *vjarvam* ‘believe’ can only select the indicative complement, and is not compatible with subjunctive *da* forms.

(161) a. Vjarvam, [♯ da ima teč v rezervoara].
   believe.1SG.PRES SUBJ have.3SG.PRES leak in oil.tank
   ‘I believe that there is a leak in the oil tank.’

   b. Vjarvam, [če ima teč v rezervoara].
   believe.1SG.PRES that have.3SG.PRES leak in oil.tank
   ‘I believe that there is a leak in the oil tank.’

The pattern in (161) can be explained as follows. (162) shows the order of composition in constructions with a matrix clause verb and an embedded complement clause with the indicative or the subjunctive mood.88

(162) (VERB (MOOD (Embedded sentence)))

The meaning of *vjarvam* ‘believe’ is given in (163), where $\cap f_{\text{DOX}}(\alpha)(w)$ is a doxastic modal base, which contains worlds compatible with what the epistemic agent $\alpha$ believes

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88 I ignore tense and aspect operators here for simplicity reasons.
in $w$ (cf. Heim 1992). (For convenience, I use the English translation instead of Bulgarian.)

\[(163) \left[ \right.\text{\normalfont\text{believe}}\right]^{c.f.}(p)(\alpha) = 1, \text{iff } \forall w' \in \cap f_{\text{DOX}}(\alpha)(w) \left[ w' \in p \right]\] According to (163), the sentence of the form $\alpha$ believes $p$ is true, iff in all worlds $w'$ compatible with what the relevant epistemic agent $\alpha$ believes in the world $w$, $p$ is true.

Consider now what happens when the complement clause is realized in the subjunctive mood. The proposition denoted by the embedded clause is evaluated with respect to the modal base and the ordering source specified by the attitude verb in the matrix clause. According to the definedness conditions of the subjunctive, repeated below in (164), at least some worlds in $\cap f(\alpha)(w)$ are the worlds in which the proposition $p$ is false.

\[(164) \text{The meaning of the subjunctive operator in Bulgarian:}\] For any context $c$, worlds $w, w'$, proposition $p$, modal base function $f$, and attitude holder $\alpha$, where $\alpha = \text{matrix clause subject}$

\[\left[ \right.\text{\normalfont\text{SUBJ} } p \right]^{c.f.g} \text{ is defined iff } \exists w' \in \cap f(\alpha)(w) [ w' \notin \left[ p \right]^{c.f.g} ]\] When defined, \[\left[ \right.\text{\normalfont\text{SUBJ} } p \right]^{c.f.g} = \left[ p \right]^{c.f.g}\]

The embedded complement clause in the subjunctive mood in (161a) has the following definedness conditions:

\[(165) \text{For any context } c, \text{ worlds } w, w', \text{ proposition } p, \text{ modal base function } f, \text{ and attitude holder } \alpha, \text{ where } \alpha = \text{matrix clause subject}\]

\[\left[ \right.\text{\normalfont\text{SUBJ} } (\text{there is a leak in the oil tank}) \right]^{c.f.g} \text{ is defined iff } \exists w' \in \cap f(\alpha)(w) [ w' \notin \left[ \text{there is a leak in the oil tank} \right]^{c.f.g} ]\] When defined, \[\left[ \right.\text{\normalfont\text{SUBJ} } (\text{there is a leak in the oil tank}) \right]^{c.f.g} = \left[ (\text{there is a leak in the oil tank}) \right]^{c.f.g}\]

The meaning of the verb $vjarvam$ ‘believe’ as defined in (163), cannot satisfy the condition of the subjunctive that at least one of the worlds in the modal base is a not-$p$ world, because according to the definition in (163), all worlds in $\cap f_{\text{DOX}}(\alpha)(w)$ are $p$ worlds. 304
Therefore, a construction with the matrix verb *vjarvam* ‘believe’ and the subjunctive complement in the embedded clause is uninterpretable. This analysis correctly predicts that *vjarvam* ‘believe’ does not combine with the subjunctive, as (161a) shows.

When the embedded clause is realized in the indicative, the derivation proceeds as follows. According to the definedness conditions of the indicative, repeated below in (166), all worlds in the modal base are either *p*-worlds or not *p*-worlds.

(166) The meaning of the indicative operator in Bulgarian:
For any context *c*, worlds *w*, *w′*, proposition *p*, modal base function *f*, and attitude holder *α*, where *α* = matrix clause subject:

\[
\text{\begin{array}{c}
\text{[[ IND } p ]\text{ is defined iff} \\
\forall w′ ∈ \cap f(\alpha)(w) \left[w′ ∈ \text{ [[ } p \text{ ]] } \cap f(\alpha)(w) \right] ∨ \\
\forall w′ ∈ \cap f(\alpha)(w) \left[w′ ∉ \text{ [[ } p \text{ ]] } \cap f(\alpha)(w) \right]
\end{array}}
\]

When defined, \text{[[ IND } p ]\text{ }} = \text{[[ } p \text{ ]] }

When the indicative applies to the embedded clause in (161b), the construction has the definedness conditions in (167).

(167) For any context *c*, worlds *w*, *w′*, proposition *p*, modal base function *f*, and attitude holder *α*, where *α* = matrix clause subject

\[
\text{\begin{array}{c}
\text{[[ IND (there.is.a.leak.in.the.oil.tank)]] is defined iff} \\
\forall w′ ∈ \cap f(\alpha)(w) \left[w′ ∈ \text{ [[ there.is.a.leak.in.the.oil.tank ]] } \cap f(\alpha)(w) \right] ∨ \\
\forall w′ ∈ \cap f(\alpha)(w) \left[w′ ∉ \text{ [[ there.is.a.leak.in.the.oil.tank ]] } \cap f(\alpha)(w) \right]
\end{array}}
\]

When defined, \text{[[ IND (there.is.a.leak.in.the.oil.tank)]]} = \text{[[ there.is.a.leak.in.the.oil.tank ]]} \cap f(\alpha)(w)

*Vjarvam* ‘believe’ specifies that all worlds in the modal base are *p*-worlds. Thus, the semantics of this verb can satisfy the definedness conditions imposed by the indicative mood operator in the embedded clause. The truth-conditions for (161b) are spelled out in (168):

(168) \text{\begin{array}{c}
\text{[[ I.believe (IND (there.is.a.leak.in.the.oil.tank))]} = 1 \iff \\
\forall w′ ∈ \cap f_{DOX}(\alpha)(w) \left[w′ ∈ \text{ [[ there.is.a.leak.in.the.oil.tank ]] } \cap f_{DOX}(\alpha)(w) \right]
\end{array}}
\]
According to (168), the sentence in (161b) is true iff in all worlds $w'$ compatible with what the relevant epistemic agent $\alpha$ believes in $w$, the proposition *there is a leak in the oil tank* is true in $w'$.

The analysis developed for *vjarvam* ‘believe’ straightforwardly applies to other verbs that select only indicative complements (cf. the list in Appendix A). In the next section, I show how the proposed analysis extends to constructions with the subjunctive mood as the only available choice.

### 12.2.2 Constructions with the subjunctive as the only choice

In this section, I focus on two groups of verbs that select subjunctive complements: volitional verbs such as *iskam* ‘want’ and directive verbs such as *karam* ‘urge’.

As the data in (169a) and (169b) show, *iskam* ‘want’ is only compatible with the subjunctive complement.

(169) Context: You are planning to spend a weekend in a small hotel on a local resort. You know that some rooms in the hotel are decorated with paintings from local artists, while other rooms are decorated with fresh flowers. When your sister asks you what kind of room you prefer, you say:

a. Iskam [da ima tsvetja].
   want.1SG.PAST SUBJ have.3SG.PRES flowers
   ‘I want there to be flowers.’

b. # Iskam [če ima tsvetja].
   want.1SG.PAST that have.3SG.PRES flowers
   Intended: ‘I want there to be flowers.’

Based on the previous work of Heim (1992) and von Fintel (1999), I assume that the proposition in the scope of *want* is evaluated with respect to the set of worlds restricted by the two conversational backgrounds, a modal base and an ordering source. The modal base $f_{\text{WANT}}(\alpha)(w)$ is a function that applied to an individual $\alpha$ and a world $w$ returns a set
of propositions that constitute the attitude holder’s \( \alpha \) desires in \( w \). The ordering source \( g(\alpha(w)) \) is a function that returns a set of propositions that represent the attitude holder’s preferences. These propositions rank the worlds in \( \cap f_{\text{WANT}}(\alpha(w)) \). The best worlds are the worlds that come closest to the ideal set by the ordering source. The definedness and the truth-conditions of the Bulgarian verb *iskam* ‘want’ are spelled out in (170).

(170) Based on von Fintel (1999:117), ex. (43)
\[
\llbracket \text{want} \rrbracket^{c,f,g} (p)(\alpha)(w) \text{ is defined iff}
\]
\[
a. f_{\text{WANT}}(\alpha(w)) \text{ is a modal base; it is a set of propositions compatible with what the attitude holder } \alpha \text{ desires in } w. h_{\text{DOX}}(\alpha(w)) \text{ is a doxastic modal base; it is a set of propositions known to the epistemic agent } a \text{ in } w. g(\alpha(w)) \text{ is the ordering source; the propositions in } g(\alpha(w)) \text{ rank the worlds in the modal base according to the attitude holder’s } \alpha \text{ preferences in } w.
\]
\[
b. f_{\text{WANT}}(\alpha(w)) = h_{\text{DOX}}(\alpha(w))
\]
\[
c. \cap f_{\text{WANT}}(\alpha(w)) \cap p \neq \emptyset
\]
\[
d. \cap f_{\text{WANT}}(\alpha(w)) - p \neq \emptyset
\]

If defined, \( \llbracket \text{want} \rrbracket^{c,f,g} (p)(\alpha)(w) = 1 \), iff
\[
\forall w' \in \max_{g(\alpha)(w)}(\cap f_{\text{WANT}}(\alpha(w))): w' \in p
\]

According on (170), a sentence of the form \( \alpha \text{ want } p \) is true iff in all the best worlds \( w' \) in \( \cap f_{\text{WANT}}(\alpha(w)) \), as ranked by the ordering source \( g(\alpha(w)) \), \( p \) is true in \( w' \). The definedness condition in (170b) guarantees that the propositions in the modal base \( f_{\text{WANT}}(\alpha(w)) \) are compatible with the attitude holder’s knowledge \( h_{\text{DOX}}(\alpha(w)) \). In the context in (169), the speaker’s desire for a hotel room to have fresh flowers is dependent on what she knows about this particular place (cf. the discussion in section 12.1.1, example (145), on what motivates this assumption). The definedness conditions in (170c) and (170d) jointly guarantee that the attitude holder is not certain whether her hotel room will have flowers or not. Some worlds in \( \cap f_{\text{WANT}}(\alpha(w)) \) are the worlds in which \( p = \text{‘there are flowers in my room’} \) is true (170c), while other worlds in \( \cap f_{\text{WANT}}(\alpha(w)) \) are not-\( p \) worlds (condition in (170d)). The application of the subjunctive operator to the embedded clause yields...
For any context \( c \), worlds \( w, w' \), proposition \( p \), modal base function \( f \), and attitude holder \( \alpha \), where \( \alpha = \) matrix clause subject:

\[
\llbracket \text{SUBJ (there are flowers in my hotel room)} \rrbracket_{c,f,g}^\alpha \text{ is defined iff }
\exists w' \in \cap f (\alpha)(w) \left[ w' \notin \llbracket \text{there are flowers in my hotel room} \rrbracket_{c,f,g} \right]
\]

The proposition expressed by the embedded clause is interpreted with respect to the modal base and the ordering source as specified by the matrix verb. The definedness conditions of \textit{iskam} ‘want’ guarantee that at least some worlds in \( \cap f (\alpha)(w) \) are not-\( p \) worlds (cf. (170d)). Thus, the definedness conditions of the subjunctive are compatible with the meaning of \textit{iskam} ‘want’. The truth conditions of the sentence in (169a) are spelled out in (172).

\[
(172) \llbracket I \text{.want (SUBJ (there are flowers in my hotel room))} \rrbracket_{c,f,g} = 1 \text{ iff }
\forall w' \in \max g (\alpha)(w) (\cap f \text{ WANT (\alpha)(w)}: w' \in \llbracket \text{there are flowers in my hotel room} \rrbracket_{c,f,g})
\]

According to the truth conditions in (172), (169a) is true iff in all the best worlds in \( \cap f \text{ WANT (\alpha)(w)} \), as ranked by the ordering source \( g (\alpha)(w) \), there are flowers in the attitude holder’s hotel room.

If the embedded clause has the indicative mood operator, as in (169b), the definedness conditions on the indicative would require that all worlds in \( \cap f (\alpha)(w) \) be homogenous.

\[
(173) \llbracket \text{IND (there are flowers in my hotel room)} \rrbracket_{c,f,g} \text{ is defined iff }
\forall w' \in \cap f (\alpha)(w) [w' \in \llbracket \text{there are flowers in my hotel room} \rrbracket_{c,f,g}] \lor
\forall w' \in \cap f (\alpha)(w) [w' \notin \llbracket \text{there are flowers in my hotel room} \rrbracket_{c,f,g}]
\]

The definedness conditions of the indicative cannot be satisfied by the matrix verb \textit{iskam} ‘want’, which imposes a restriction that modal base, and hence \( \cap f (\alpha)(w) \) is not
homogenous (cf. (170c) and (170d)). Thus, a construction with the matrix verb \textit{iskam} ‘want’ and the indicative mood in the complement would be non-interpretable. This is exactly what we find, as (169b) shows.

Another major class of verbs that select subjunctive complements are directive verbs, i.e. \textit{karam} ‘urge’, \textit{zabranjavam} ‘forbid’, \textit{zapovjadvam} ‘order’. Similarly to \textit{iskam} ‘want’, predicates such as \textit{kram} ‘urge’ select the subjunctive complement only, as the examples in (174) show.

(174) Context: You are having a birthday party. Your friend Maria likes to dance but today she is sad. You are persuading Maria to dance. When one of the friends stops by and asks you what you are talking about, you say:

\begin{verbatim}
a. Karam Maria [da tantsuva].
urge.IMPERF.1SG.PRES Maria SUBJ dance.3SG.PRES
‘I’m urging Maria to dance.’

b. # Karam Maria [če tantsuva].
urge.IMPERF.1SG.PRES Maria that dance.3SG.PRES
‘I’m urging Maria to dance.’
\end{verbatim}

I propose that the meaning of verbs such as \textit{karam} ‘urge’ is similar to \textit{want} in that it involves comparison of the worlds in \(\cap f (\alpha)(w)\) based on their compatibility with the attitude holder’s plans in \(w\). I assume that directive predicates involve a doxastic modal base \(f_{DOX} (\alpha)(w)\) and a teleological ordering source (Kratzer 1977, 1981 on teleological conversational background). I propose the following definition of \textit{karam} ‘urge’:

(175) \([\text{urge}]^{c,f,g} (p) (\alpha) (w)\) is defined iff
\begin{enumerate}
\item \(f_{DOX} (\alpha)(w)\) is a doxastic modal base; it is a set of propositions compatible with what the attitude holder \(\alpha\) knows in \(w\). \(g (\alpha) (w)\) is a teleological ordering; it is a set of propositions that rank the worlds in \(\cap f_{DOX} (\alpha)(w)\) based on how well they conform to \(\alpha\)’s plans in \(w\).
\item \(\cap f_{DOX} (\alpha)(w) \cap p \neq \emptyset\)
\item \(\cap f_{DOX} (\alpha)(w) - p \neq \emptyset\)
\end{enumerate}
If defined, \([\text{urge}]^{c,f,g} (p) (\alpha) (w)\) = 1 iff
\[\forall w' \in max_{g (\alpha) (w)} (\cap f_{DOX} (\alpha)(w)): w' \in p\]
Consider how this analysis accounts for the data in (174). When the embedded clause is realized in the subjunctive mood, as in (174a), the definedness condition of the subjunctive requires that the worlds in $\cap f(\alpha)(w)$ be non-homogenous.

\[(176)\] For any context $c$, worlds $w$, $w'$, proposition $p$, modal base function $f$, and attitude holder $\alpha$, where $\alpha = \text{matrix clause subject:} \begin{array}{|l|} \hline \text{SUBJ (Maria.dances)} \end{array} \begin{array}{|l|} \hline \end{array}$ is defined iff

$$\exists w' \in \cap f(\alpha)(w) \left[ w' \notin \begin{array}{|l|} \hline \text{Maria.dances} \end{array} \begin{array}{|l|} \hline \end{array} \right]$$

This requirement is satisfied since the proposition expressed by the embedded clause is evaluated with respect to the modal base specified by the matrix clause predicate, and *karam* ‘urge’ encodes as part of its meaning the requirement that the modal base be non-homogenous (conditions (175b) and (175c)). The sentence in (174a) has the truth conditions in (177).

\[(177)\] $\begin{array}{|l|} \hline \text{I.urge (SUBJ (Maria.dances))} \end{array} \begin{array}{|l|} \hline \end{array} = 1$ iff

$$\forall w' \in \max_{\alpha}(w) \left( \cap f_{DOX}(\alpha)(w) : w' \in \begin{array}{|l|} \hline \text{Maria.dances} \end{array} \begin{array}{|l|} \hline \end{array} \right)$$

According to (177), the sentence of the form *I am urging Maria to dance* is true iff in all the best worlds $w'$ in $\cap f_{DOX}(\alpha)(w)$ as ranked by the teleological ordering source, Maria dances in $w'$. The incompatibility of *karam* ‘urge’ with the indicative mood is explained by the fact that the definedness conditions on the indicative require that the set of worlds in $\cap f(\alpha)(w)$ with respect to which the embedded sentence in the scope of the indicative is interpreted, be homogenous. However, *karam* ‘urge’ does not meet this requirement (cf. (175b) and (175c)).

*Zabranjavam* ‘forbid’ is similar to *karam* ‘urge’ in that the proposition in the scope of this verb is evaluated with respect to a doxastic modal base and a teleological ordering
source. However, in the case of zabranjavam ‘forbid’, the best worlds are the worlds in which the proposition in the scope of the attitude verb is false. The truth and definedness conditions of zabranjavam ‘forbid’ are given in (178):

\[(178) \begin{align*} 
\text{[[forbid]]} &\text{ is defined iff} \\
\text{a. } f_\text{DOX}(\alpha)(w) \text{ is a doxastic modal base; is a set of propositions compatible with} \\
\text{what the attitude holder } \alpha \text{ knows in } w, \text{ g}(\alpha)(w) \text{ is a teleological ordering source;} \\
\text{it is a set of propositions that rank the worlds in } \cap f_\text{DOX}(\alpha)(w) \text{ based on how well} \\
\text{they conform to } \alpha \text{’s plans in } w. \\
\text{b. } \cap f_\text{DOX}(\alpha)(w) \cap p \neq \emptyset \\
\text{c. } \cap f_\text{DOX}(\alpha)(w) - p \neq \emptyset \\
\text{If defined, } \text{[[forbid]]} &\text{ is defined iff} \\
\text{iff } \forall w' \in \max \text{g}(\alpha)(w)(\cap f_\text{DOX}(\alpha)(w)): w' \notin p \\
\end{align*} \]

Consider how this definition can account for the meaning of the sentence in (179).

\[(179) \text{Context: Maria, one of your best dance students, sustained an injury yesterday.} \\
\text{Despite the fact that she is eager to continue her practise, it would be better if she} \\
\text{didn’t practice for a couple of weeks. When you discuss Maria’s conditions with} \\
\text{the director of the dance company, you say:} \\
\text{Zabranjavam na Maria [da tantsuva].} \\
\text{forbid.IMPERF.1SG.PRES to Maria SUBJ dance.3SG.PRES} \\
\text{‘I am forbidding Maria to dance.’} \]

According to the definedness conditions of the subjunctive, the modal base with respect to which the proposition in the scope of zabranjavam ‘forbid’ is interpreted is non-homogenous, as (180) shows.

\[(180) \text{For any context } c, \text{ worlds } w, w', \text{ proposition } p, \text{ modal base function } f, \text{ and} \\
\text{attitude holder } \alpha, \text{ where } \alpha = \text{ matrix clause subject:} \\
\text{[[SUBJ (Maria.dances)]]} &\text{ is defined iff} \\
\text{iff } \exists w' \in \cap f(\alpha)(w) [w' \notin [\text{Maria.dances}]] \]

This requirement is satisfied by the conditions in (178b) and (178c). Thus, the subjunctive mood is compatible with the meaning of zabranjavam ‘forbid’. The truth-conditions of (179) are spelled out in (181).
(181) \[ [I\text{forbid} (\text{SUBJ} (\text{Maria.dances})))]^c_{f,g} = 1 \text{ iff } \\
\forall w' \in \max_{g(w)}(\cap f_{\text{DOX}}(\alpha)(w)): w' \notin [\text{Maria.dances}]^c_{f,g}
\]

According to (181) the Bulgarian sentence in (179) is true iff all the best worlds compatible with what the attitude holder \(\alpha\) knows in \(w\) are such that Maria does not dance in \(w\).

To summarize, the analysis presented in this section can successfully account for the pattern of complement selection by volitional and directive verbs, i.e. predicates that only select subjunctive complements. In the next section, I discuss the cases when the same verb is compatible with both the subjunctive and the indicative complement, and the choice of the complement is determined by the context.

### 12.2.3 Constructions that allow both the indicative and the subjunctive

In this section, I discuss constructions in which the matrix verb is compatible either with the indicative or with the subjunctive mood in the complement. I specifically focus on constructions with perception verbs such as \(\text{čuvam}\) ‘hear’, epistemic verb \(\text{spomnjam si}\) ‘remember’, and negated epistemic verbs such as \(\text{ne vjarvam}\) ‘not believe’ in the main clause. As the discussion in chapter 11 has shown, the subjunctive mood is consistently associated with a weaker commitment on the part of the attitude holder. Informally, when the subjunctive complement is selected over the indicative, the attitude holder evaluates the proposition depending on what she knows in a particular situation. In order to capture this dependency, I assume that in some contexts the worlds in \(\cap f(\alpha)(w)\), where \(f(\alpha)(w)\) depends on the meaning of a particular attitude verb, are ranked by the doxastic ordering source. Before discussing the Bulgarian data, consider first a context in which the
analysis of an epistemic modal construction in English employs a doxastic ordering source, from Portner (2009). The sentence in (182) is uttered in the context in which the doctor is examining his patient.

(182) Portner (2009:71), ex. (105a)
   You must have the flu.

The proposition in the scope of the modal, i.e. ‘you have the flu’, is evaluated with respect to the worlds provided by the epistemic modal base. All worlds in the modal base are compatible with what the doctor observes about his patient’s symptoms. According to Portner (2009), the ordering source in (182) is doxastic. The doctor ranks the worlds in ∩f(α)(w) according to what she knows. The relevant propositions supplied by the ordering source are the following: The patient has not had a flu shot, There is a flu epidemic in the city, etc. According to the ranking imposed by the ordering source, the best worlds in ∩f(α)(w) are the worlds in which the patient has the flu. In what follows, I show that the doxastic ordering source plays an important role in the analysis of mood in Bulgarian. Specifically, it allows me to explain the choice of mood in complements of verbs that are compatible with both the indicative and the subjunctive.

12.2.3.1 Perception verbs

The data in (183) shows that the perception verb чувам ‘hear’ selects the subjunctive in the context when the attitude holder is committed to the truth of the proposition p but the commitment leaves room for doubt. The sentence in (183a) specifies that the speaker perceives some auditory clues that suggest that her brother is singing. The speaker is weakly committed to the truth of this proposition in the scope of the perception verb.

89 Cf. also Lee’s (2010) analysis of evidentials in Korean that uses the doxastic ordering source.
You and your brother are staying home. While working in your study, you hear singing from your brother’s room. It must be your brother who is singing, but you are not sure. When your mom calls you on the phone and asks you what your brother is doing, you say

a. Ćuvam go [da pee].
   hear.1SG.PRES him SUBJ sing.3SG.PRES
   ‘I hear him singing.’

b. # Ćuvam [če pee].
   hear.1SG.PRES that sing.3SG.PRES
   ‘I hear that he is singing.’

According to the definedness and the truth conditions for the verb čuvam ‘hear’ in (184), guarantee that the proposition in the scope of this verb is evaluated against the modal base compatible with the attitude holder’s auditory experience, \( f_{\text{HEAR}} (\alpha)(w) \) (184a). Moreover, the definedness condition in (184b) guarantees that at least some worlds in the modal base are \( p \) worlds.

\[
(184) \quad \llbracket \text{hear} \rrbracket^{c.f.g} (p)(\alpha)(w) \text{ is defined iff}
\]

\[
a. \quad f_{\text{HEAR}} (\alpha)(w) \text{ is a modal base; it is a set of propositions compatible with what the attitude holder } \alpha \text{ hears in } w. \ g (\alpha)(w) \text{ is a doxastic ordering source; it is a set of propositions that rank worlds in } \bigcap f_{\text{HEAR}} (\alpha)(w) \text{ according to the attitude holder’s } \alpha \text{ beliefs in } w. \\
b. \quad \bigcap f_{\text{HEAR}} (\alpha)(w) \cap p \neq \emptyset
\]

If defined, \( \llbracket \text{hear} \rrbracket^{c.f.g} (p)(\alpha)(w) = 1, \text{ iff}
\]

\[
\forall w' \in \max g (\alpha)(w) \left( \bigcap f_{\text{HEAR}} (\alpha)(w) \right): w' \in p
\]

The propositions that are members of the modal base \( f_{\text{HEAR}} (\alpha)(w) \) in the context in (183) are listed in (185):

\[
(185) \quad \text{Modal base in (183): } \{ \text{There is the sound of cars passing by. There is the sound of my neighbor’s dog barking. There is the sound of music from my brother’s room. There is the sound of singing coming from my brother’s room.} \}
\]

Not all worlds in \( \bigcap f_{\text{HEAR}} (\alpha)(w) \) are worlds where the proposition ‘my brother is singing’ is true. The proposition ‘there is the sound of singing coming from my brother’s room’ can be true in a world in which the attitude holder’s brother watches MTV. Such an
analysis explains why the subjunctive mood is selected in the contexts such as (183). The doxastic ordering source ranks the worlds in $\cap f^{\text{HEAR}}(\alpha)(w)$. For the context in (183), we can assume that the propositions that are relevant for the interpretation of the auditory experience in (183) are the following.

(186) Ordering source (doxastic) in (183): {My brother is a good singer. He likes to stay in his room and sing. There are no other people in my brother’s room}

The attitude holder’s knowledge about her brother and his habits assigns the highest ranking to the worlds in which the proposition ‘my brother is singing’ is true. This ranking guarantees that all the best worlds in $\cap f^{\text{HEAR}}(\alpha)(w)$ are the worlds in which the attitude holder’s brother is singing.

According to the definedness conditions of the subjunctive, the modal base with respect to which the proposition in the scope of the subjunctive is interpreted must be non-homogenous. The meaning of $\text{čuvam}$ ‘hear’ in (184) satisfies this requirement. Specifically, the condition in (184b) guarantees that the intersection of $\cap f^{\text{HEAR}}(\alpha)(w)$ with $p$ is non-empty. This is compatible with the situation in which all worlds in $\cap f^{\text{HEAR}}(\alpha)(w)$ are $p$ worlds.

The truth conditions for (183a) are given in (187).

(187) $[I.\text{hear (SUBJ (my.brother.is.singing))}]^{c,f,g} = 1$ iff $\forall w' \in \max_{g(\alpha)(w)} (\cap f^{\text{HEAR}}(\alpha)(w)): w' \in [[\text{my.brother.is.singing}]]^{c,f,g}$

According to (187), the Bulgarian sentence in (183a) is true iff in all worlds $w'$ compatible with the attitude holder’s $\alpha$ auditory experience in $w$, the best worlds are such that the attitude holder’s brother is singing in $w'$. Consider now the context in (188), where the perception verb $\text{čuvam}$ ‘hear’ selects the indicative complement.
(188) Context: You and your brother are staying home. Your brother is preparing for an entrance exam at the music academy. He practices singing every day, and you can hear that he is singing now. When your mom calls you and asks you what your brother is doing, you say:

a. # Čuvam [da pee].
   hear.1SG.PRES SUBJ sing.3SG.PRES
   ‘I hear that he is singing.’

b. Čuvam [če pee].
   hear.1SG.PRES that sing.3SG.PRES
   ‘I hear that he is singing.’

The context in (188) crucially differs from (183) in terms of what the speaker experiences. This difference affects the content of the modal base. The modal base for (188b) contains the proposition ‘my brother is singing’. Thus, all the worlds in \( \cap f_{\text{HEAR}} (\alpha)(w) \) are the worlds in which the attitude holder's brother is singing, as (189) shows.

(189) Modal base in (189b): {There is the sound of cars passing by. There is the sound of my neighbor’s dog barking. There is the sound of music from my brother’s room. There is the sound of my brother’s singing.}

The ordering source is doxastic, and it ranks the worlds in \( \cap f_{\text{HEAR}} (\alpha)(w) \) the modal according to what the speaker knows about her brother.

(190) Ordering source in (189b): {My brother is preparing for an entrance exam to the music academy. He does not have a TV or a radio in his room. There are no other people in my brother’s room.}

The worlds in which the speaker’s brother is singing are the best worlds, according to the speaker’s knowledge. (188b) is different from (183a) in that in (188) all worlds in \( \cap f_{\text{HEAR}} (\alpha)(w) \) are \( p \)-worlds, and, consequently, all the worlds in \( \cap f_{\text{HEAR}} (\alpha)(w) \) are the best worlds (cf. also Giorgi and Pianesi 1997 on the idea that the subjunctive involves a non-null ordering source). Because of this, the indicative is associated with a stronger epistemic commitment than the subjunctive. The derivation of (188b) proceeds as
follows. The definedness conditions of the indicative require that the modal base be homogenous. The proposition expressed by the embedded clause is interpreted with respect to the modal base provided by the matrix verb čuvam ‘hear’. According to the meaning of čuvam ‘hear’, the intersection of $\cap f\text{HEAR}(\alpha)(w)$ with the proposition $p$ is non-empty. This is compatible with situations in which all worlds in $\cap f\text{HEAR}(\alpha)(w)$ are $p$ worlds, which is the case in (188b). The truth conditions for (188b) are spelled out in (191).

$$(191) \llbracket I.\text{hear (IND (my.brother.is.singing))} \rrbracket^{c,f,g} = 1 \text{ iff }$$
$$\forall w' \in \max_{g(\alpha)(w)} (\cap f\text{HEAR}(\alpha)(w)): w' \in \llbracket \text{my.brother.is.singing} \rrbracket^{c,f,g}$$

According to (191), (188b) is true iff all the best worlds $w'$ in $\cap f\text{HEAR}(\alpha)(w)$ are such that the attitude holder’s brother is singing in $w'$.

In the next section, I show how an analysis along these lines explains the meaning of sentences with the matrix verb spomnjam si ‘remember.’

122.3.2 Spomnjam si ‘remember’

The discussion in chapter 11 has shown that spomnjam si ‘remember’ is in principle compatible with both the indicative and the subjunctive complement. The subjunctive is selected when the speaker has a weaker epistemic commitment, as the data in (192) show.

(192) Context: Your childhood friend Maria is now a famous singer. Your mom says that when Maria was a child, she sang at your 10th birthday party. You remember the party and that there was a girl with a beautiful voice who sang at your party. This girl might have been Maria. When your mom asks you if you remember Maria singing, you say:

a. Spomnjam si ja [da pee].
   remember.1SG.PRES REFL her SUBJ sing.3SG.PRES
   ‘I remember her singing.’

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b. # Spomnjam si [če peeše].
   remember.1SG.PRES REFL that sing.3SG.PAST
   ‘I remember that she sang.’

I assume that in the case of *spomnjam si* ‘remember’, the worlds with respect to which
the proposition in the scope of the attitude verb is evaluated are the worlds compatible
with the attitude holder’s memories. The meaning of *spomnjam si* ‘remember’ is given in
(193).

\[(193) \text{[[remember]]}^\text{c.f.g} (p)(\alpha)(w) \text{ is defined iff}
\]
\[\text{a. } f_{\text{REMEMBER}}(\alpha)(w) \text{ is a modal base; it is a set of propositions compatible with the}
   \text{attitude holder’s } \alpha \text{ memories in } w. g(\alpha)(w) \text{ is a doxastic ordering source; it is a set}
   \text{of propositions that rank the worlds in } \cap f_{\text{REMEMBER}}(\alpha)(w) \text{ according to what } \alpha
   \text{ knows in } w.\]
\[\text{b. } \cap f_{\text{REMEMBER}}(\alpha)(w) \cap p \neq \emptyset
\]
\[\text{If defined, } \text{[[remember]]}^\text{c.f.g} (p)(\alpha)(w) = 1, \text{ iff}
\]
\[\forall w' \in \text{max}_{g(\alpha)(w)} (\cap f_{\text{REMEMBER}}(\alpha)(w)): w' \in p\]

According to the truth conditions in (193), the sentence of the form \( \alpha \text{ remember } p \)
iff in all the best worlds in \( \cap f_{\text{REMEMBER}}(\alpha)(w) \), as ranked by the ordering source, \( p \) is true.
Consider now how this analysis accounts for the meaning of the sentence with the
subjunctive complement in (192a).

The modal base \( f_{\text{REMEMBER}}(\alpha)(w) \) contains the propositions in (194).

\[(194) \text{Modal base in (192): } \{\text{I had a 10\textsuperscript{th} birthday party. There was a gigantic}
   \text{chocolate cake. There was a girl with a beautiful voice who sang at my party}\}\]

The ordering source contains the propositions in (195).

\[(195) \text{Ordering source in (192): } \{\text{Maria was at my 10\textsuperscript{th} birthday party, because there is}
   \text{a photograph of me and her dancing. Maria liked to sing at the parties}\}\]

The definedness conditions of the subjunctive require that the domain of evaluation be
non-homogenous. This requirement is satisfied by the meaning of the verb *spomnjam si*
‘remember’. Specifically, the definedness condition in (193b) requires that the
intersection of $\cap f_{\text{REMEMBER}}(\alpha)(w)$ with $p$ is non-empty. This requirement is satisfied by the context in (192a). Note, however, that not all worlds in $\cap f_{\text{REMEMBER}}(\alpha)(w)$ in the context in (192a) are the worlds in which Maria sings at the attitude holder’s birthday party (cf. (196)).

The truth conditions of (192a) are spelled out in (196).

(196) \[[ I.\text{remember} (\text{SUBJ (Maria.sings))}] \] cf.g = 1 iff 
\[ \forall w' \in \max g(\alpha)(w) (\cap f_{\text{REMEMBER}}(\alpha)(w)) : w' \in \[[ Maria.sings]\] cf.g\]

According to (196), (192a) is true iff all the best worlds $w'$ in $\cap f_{\text{REMEMBER}}(\alpha)(w)$, as ranked by the ordering source $g(\alpha)(w)$ are such that Maria sings at the speaker’s 10th birthday party. This analysis predicts that in the context in (192a), the verb spomnjam si ‘remember’ is not compatible with the indicative mood. The modal base in (192a) is heterogeneous (= non-homogenous), while the indicative requires that all worlds in the modal base should be homogenous.

Spomnjam si ‘remember’ selects the indicative in the context such as (197).

(197) Context: Your childhood friend Maria is now a famous singer. Your mom says that when Maria was a child, she sang at your 10th birthday party. You clearly remember that Maria sang at your 10th birthday party. She had such a beautiful voice! When your mom asks you if you remember the event, you say:

a. # Spomnjam si ja [da pee].
   remember.1SG.PRES REFL her SUBJ sing.3SG.PRES
   ‘I remember her singing.’

b. Spomnjam si [če peeše].
   remember.1SG.PRES REFL that sing.3SG.PAST
   ‘I remember that she sang.’

Modal base in (197b) contains the following propositions.

(198) Modal base for (197): {I had a 10th birthday party. There was a gigantic chocolate cake. Maria sang my favorite song at the party}.  

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Crucially, the proposition \( p = 'Maria sang at my birthday party' \) is part of the modal base in (198). Thus, all worlds in \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) are \( p \)-worlds. The ordering source is the same as in (195). Because all worlds in \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) are the worlds in which \( p \) is true, the application of the ordering source does not affect the domain of quantification; all worlds in \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) are best worlds. Therefore, the strength of commitment in (198b) is stronger than that in (193a).

\textit{Spomnjam si} ‘remember’ in (197b) is compatible with the indicative because the indicative requires that the set of worlds with respect to which the proposition \( p \) expressed by the complement clause is evaluated be homogenous. In (197b), the modal base is \( f_{\text{REMEMBER}}(\alpha)(w) \). In the context in (197b), \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) is homogenous. This is compatible with the definedness condition on \textit{spomnjam si} ‘remember’ in (193b), according to which the intersection of \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) with \( p \) is non-empty. This is compatible with the scenario in which not just some but all worlds in \( \cap f_{\text{REMEMBER}}(\alpha)(w) \) are \( p \) worlds. The meaning of (197b) is spelled out in (199).

\[(199) \llbracket I.\text{remember} (\text{SUBJ} (\text{Maria.sings})) \rrbracket^{c.f.g} = 1 \text{ iff } \forall w' \in \max_{g(\alpha)(w)} (\cap f_{\text{REMEMBER}}(\alpha)(w)): w' \in \llbracket \text{Maria.sings} \rrbracket^{c.f.g}
\]

In the next section, I show how the proposed analysis explains the pattern of mood selection in complements of negated epistemic verbs.

12.2.3.3 Negated epistemic verbs

As in other cases in which the same verb is compatible with both the indicative and the subjunctive mood in its complement, the choice of mood in complements of negated epistemic verbs such as \textit{ne vjarvam} ‘not believe’ is depends on the context. The context in (200) specifies (i) that the speaker is committed to the falsity of the proposition \( p = \)
‘there is a leak in the oil tank’; (ii) the strength of the commitment is rather weak, i.e. an alternative scenario is also a possibility. Only the subjunctive complement is possible in such a context.

(200) Context: There is a mechanical problem with your boat. Some people suggested that there is a leak in the oil tank. You didn’t have a chance to examine the oil tank yet. You think that it is unlikely that the oil tank is leaking, but you are not sure what the problem is. When someone asks you what you think about the oil leakage possibility, you say:

a. Ne vjarvam [da ima teč v rezervoara].
   NOT believe.IMPERF.1SG.PRES  SUBJ have.3SG.PRES leak in oil.tank
   ‘I don’t believe there to be a leak in the oil tank.’

b. # Ne vjarvam [če ima teč v rezervoara].
   NOT believe.IMPERF.1SG.PRES  that have.3SG.PRES leak in oil.tank
   ‘I don’t believe that there is a leak in the oil tank.’

In order to account for the data in (200), I treat the negation and a verb as one semantic unit, and propose that ne vjarvam ‘not believe’ has the meaning in (201).

(201) The semantics of ne vjarvam ‘not believe’
\[
\| \text{not believe} \|^{c_{f,g}} (p)(\alpha)(w) \text{ is defined iff}
\]
\[
a. f_{\text{DOX}} (\alpha)(w) \text{ is a modal base; it is a set of propositions compatible with the attitude holder’s } \alpha \text{ beliefs in } w. g(\alpha)(w) \text{ is a doxastic/stereotypical ordering source; it is a set of propositions that rank the worlds in } \cap f_{\text{DOX}} (\alpha)(w) \text{ depending on what } \alpha \text{ knows/what is plausible in } w.
\]
b. \( \cap f_{\text{DOX}} (\alpha)(w) \cap \neg p \neq \emptyset \)
   If defined, \( \| \text{not believe} \|^{c_{f,g}} (p)(\alpha)(w) = 1 \), iff
   \[
   \forall w' \in \max_{g(\alpha)(w)} (\cap f_{\text{DOX}} (\alpha)(w)): w' \in \neg p
   \]

According to the definedness conditions in (201), the proposition in the scope of ne vjarvam ‘not believe’ is evaluated with respect to a set of worlds compatible with what \( \alpha \) believes in \( w \), i.e. \( \cap f_{\text{DOX}} (\alpha)(w) \). Moreover, the intersection between \( \cap f_{\text{DOX}} (\alpha)(w) \) the and \( \neg p \) is non-empty (201b). This definedness condition guarantees that at least some of the worlds in \( \cap f_{\text{DOX}} (\alpha)(w) \) are not-\( p \) worlds. The truth conditions in (201) specify that the
sentence of the form \( \alpha \not\text{believe} p \) is true iff in all best worlds \( w' \) in \( \cap f_{\text{DOX}} (\alpha)(w) \) ranked by the doxastic/stereotypical ordering source are such that \( p \) is false in \( w' \).

Which propositions go into the modal base in (200) is contextually specified. The propositions in the modal base in (200) are the speaker’s beliefs about the state of affairs described by the context, i.e. these are propositions that pertain to the situation in which the speaker has a mechanical problem with her boat.

(202) Modal base: \{There is a problem with my boat. The oil tank has not been examined yet. The motor has not been examined yet\}

The plausibility ordering source ranks the worlds in \( \cap f_{\text{DOX}} (\alpha)(w) \) based on what is considered plausible by \( \alpha \). In the case of (200), the information that helps the attitude holder to assess the plausibility of the leakage is her knowledge about different mechanical components. The ordering source for (200a) is represented in (203).

(203) Ordering source: \{The oil tank has been recently replaced. The oil tanks are generally reliable. The motor is old and needs replacement\}.

The ordering source in (203) ranks worlds in which the oil tank is not leaking as the best worlds. The subjunctive in (200) is felicitous because the definedness conditions of the subjunctive require \( \cap f_{\text{DOX}} (\alpha)(w) \) to be non-homogenous. This requirement is met by (202). Some of the worlds in \( \cap f_{\text{DOX}} (\alpha)(w) \) are the worlds in which the oil tank is leaking, and some worlds are the worlds in which the oil tank is not leaking. The ordering source ranks as best the worlds in which the oil tank is not leaking. However, since some worlds in \( \cap f_{\text{DOX}} (\alpha)(w) \) are \( p \)-worlds, i.e. the worlds in which the oil tank is leaking, the domain of quantification as specified by the ordering source, i.e. the set of best worlds, is smaller than the set of worlds in \( \cap f_{\text{DOX}} (\alpha)(w) \). This component of the analysis is responsible for
the fact that the speaker’s commitment is weaker in constructions with subjunctive complements.\textsuperscript{90}

According to the truth conditions in (204), the sentence in (200a) is true iff all the best worlds in \(\cap_{\text{DOX}} (a) \ (w)\), as ranked by the ordering source, are the worlds in which the oil tank is not leaking.

\[
(204) \quad \left[ I.\text{not.believe (SUBJ (the.oil.tank.is.leaking))}\right]^{c,f,g} = 1 \text{ iff } \forall w' \in \max_g (\cap_{\text{DOX}} (a) (w)): w' \in \left[ \text{the.oil.tank.is.leaking} \right]^{c,f,g}
\]

Consider now the context in (205), where the subjunctive is infelicitous, and the indicative is the only available choice.

(205) Context: There is a mechanical problem with your boat. Some people suggested that there might be a leak in the oil tank. You just examined the oil tank and determined that there is no leak. When someone asks you about the results of your mechanical exam, you say:

a. \# Ne vjarvam [da ima teč v rezervoara].
   ‘I don’t believe there to be a leak in the oil tank.’

b. Ne vjarvam [če ima teč v rezervoara].
   ‘I don’t believe that there is a leak in the oil tank.’

The modal base for (205b) contains the propositions listed in (206).

(206) Modal base in (205b): {There is a problem with my boat. The oil tank is not leaking. The motor has not been checked yet.}

\textsuperscript{90} The idea that different criteria restrict the domain of quantification in different ways is also advocated in von Fintel & Iatridou’s (2008) paper on weak necessity modals. Their formal analysis of \textit{ought to} involves two ordering sources that restrict the domain of quantification based on different criteria. Thus, the first ordering source for \textit{ought to} in (i) ranks as best the worlds in which the addressee attains her goal and gets to Ashfield. The second ordering source in (i) ranks the worlds in which the addressee goes to Ashfield by the most scenic route.

(i) From von Fintel and Iatridou (2008:127), ex. (45)
   To go to Ashfield you ought to take Route 2.
The modal base in (206) is crucially different from that in (202) in that all the worlds in \( \cap f_{\text{DOX}}(\alpha)(w) \) are not-\( p \) worlds, i.e. the worlds in which the oil tank is not leaking. This is why in the context in (205b), the indicative is the only choice – all worlds in \( \cap f_{\text{DOX}}(\alpha)(w) \) are homogenous, which satisfies the definedness condition of the indicative but not the subjunctive. The doxastic/stereotypical ordering source contains the same propositions as the ordering source in (203).

(207) Ordering source: \{The oil tank has been recently replaced. The motor is old and needs replacement\}.

Unlike (203), however, the ordering source for (205b) does not have any semantic effect on the domain of quantification, since all worlds in the \( \cap f_{\text{DOX}}(\alpha)(w) \) are already \( p \) worlds. Thus, the set of the best worlds, as specified by the ordering source is the same as the set of worlds in \( \cap f_{\text{DOX}}(\alpha)(w) \). This assumption explains why the epistemic commitment of the attitude holder in constructions with indicative complements is stronger than in constructions with the subjunctive complements. According to the truth conditions in (208), (205b) is true iff all the best worlds \( w' \) in \( \cap f_{\text{DOX}}(\alpha)(w) \), as ranked by the ordering source \( g(\alpha)(w) \) are such that the oil tank is not leaking.

(208) \([ I \text{ not.believe} ( \text{IND(\text{the.oil.tank.is.leaking}))}]^{c.f.g} = 1 \text{ iff } \forall w' \in \max_{g(\alpha)(w)} (\cap f_{\text{DOX}}(\alpha)(w)): w' \in [ the.oil.tank.is.not.leaking]^{c.f.g}\)

The analysis along these lines straightforwardly applies to other cases of negated epistemic verbs.

12.3 Summary

This chapter presented the analysis of mood in Bulgarian. The empirical generalizations established in chapter 11 have shown that the subjunctive is consistently associated with a
weaker epistemic commitment compared to that expressed by indicative complements. The formal analysis developed in this chapter shows that the meaning of individual propositional attitude verbs, as well as the meaning of the subjunctive and the indicative operator is responsible for the difference in the degrees of epistemic commitment. Based on the observations in Portner (1997) and Matthewson (2010b), I argued that the subjunctive/indicative operators do not truth conditionally encode quantificational force. Instead, they have a presuppositional component that restricts the domain of quantification, which is determined by the governing propositional attitude verb. For example, the subjunctive operator presupposes that the domain of quantification is not-homogenous, i.e. some worlds are $p$ worlds, while other worlds are not-$p$ worlds. The indicative, on the other hand, specifies that all worlds in the modal base are homogenous: all worlds are $p$ worlds or all worlds are not-$p$ worlds. In order to account for the fact that the subjunctive still commits the attitude holder to a particular position, I proposed that the truth of the proposition $p$ embedded under the propositional attitude verb is evaluated with respect to a smaller set of worlds. The type of the ordering source and the modal base depends on the meaning of individual propositional attitude verbs (cf. von Fintel 1999).

In the next chapter, I present previous analyses of mood and discuss the differences between the previous proposal and the analysis I advocate for Bulgarian.
CHAPTER 13: PREVIOUS LITERATURE ON MOOD

In this chapter I review the most recent analyses of mood as well as the analyses that are closest in spirit to the proposal advocated here. Section 13.1 provides background information and identifies the common trends in the analysis of mood. In section 13.2, I discuss Giannakidou’s (1998), (2009) analysis of the subjunctive mood in Greek. Section 13.3 discusses Villalta’s (2008) gradability-based account of mood in Spanish. Section 13.4 is a summary of the chapter.

13.1 The analyses of mood: an overview

Previous analyses of mood differ with respect to which semantic feature of the matrix predicate is taken to be responsible for the pattern on mood selection (cf. Givón 1994 on the analysis of mood in terms of realis/irrealis, Farkas’ analysis in terms of intensionality vs. extensionality, Giannakido’s 2009 veridicality-based analysis, Villalta 2009 on the analysis of mood in terms of ordering). In what follows, I provide a brief overview of the main trends in the analysis of mood.

One influential analysis explains the pattern of mood selection in terms of a binary opposition between realis and irrealis contexts (cf. Palmer 2001:4 for an overview). The indicative is a grammatical category that marks information as realis, i.e. “as actualized, as having occurred or actually occurring, knowable through direct perception. The irrealis portrays situations as purely within the realm of thought,
knowable only through imagination” (Mithun 1999:173). A realis/irrealis approach to mood distribution is advocated in traditional grammars, as well as within a functional linguistic framework (e.g., Givón 1994).

Givón (1994) formulates a condition on the distribution of the subjunctive based on data from Romance languages and Bantu languages. He observes that “the subjunctive mood turns out to occupy two coherent sub-regions within irrealis: (a) the subjunctive of lower certainty (within the epistemic submode of irrealis), and (b) the subjunctive of weaker manipulation (within the deontic mode of irrealis) (Givón 1994: 265).” This generalization captures the fact that the subjunctive occurs in complements of directive verbs, such as advise, as well as in the complement of low certainty verbs such as doubt. Such an analysis seems to capture the generalizations proposed for Bulgarian. At the same time, the grouping proposed by Givón raises the question of what the two types of contexts, i.e. low certainty contexts and weak manipulation contexts have in common. Givón advocates a communicative approach to epistemic modality more generally, and to irrealis in particular, and defines irrealis assertions as speech acts whereby “the speaker is not ready to back up the assertion with evidence or other strong grounds; and challenge from the hearer is readily entertained, expected, and even solicited.” (Givón 1994: 268).

It is hard to see how constructions with volitional verbs such as querer 'want' that uniformly select the subjunctive fall into this group. By communicating her desires or wishes, the speaker is not looking for any type of affirmation or challenge from interlocutors. Moreover, the cases when the same verb, such as the emotive factive predicate horrorizaba ‘be shocked’ in Spanish is compatible with both the subjunctive
and the indicative mood, cannot be accounted for within the framework of irrealis modality, advocated by Givón. In order to explain this pattern, Givón assumes that mood selection depends on the degree of emotional involvement. When the speaker is less surprised/emotionally involved she would use the indicative in the complements of verbs like *horrorizaba* ‘be shocked’, but when the level of emotional involvement is higher, the subjunctive is used. In summary, while the empirical generalizations proposed by Givón also hold for Bulgarian, it is hard to see how a communicative-based approach to irrealis can account for the variety of contexts that license the subjunctive.

Farkas’ (1992) analysis of mood in Romance presents a radical departure from the traditional realis/irrealis approach. She makes several important contributions to the understanding of mood. Notably, she observes that “the crucial factor in determining mood distribution is not truth in the actual world as opposed to truth in some non-actual world” (Farkas 1992:85). In order to explain the pattern of mood selection, she introduces the concept of an *individual anchor*, i.e. the idea that the propositions in the scope of propositional attitude verbs are interpreted not with respect to the actual world (as assumed by realis/irrealis theories (cf. Mithun’s definition above), but with respect to the belief-world of an individual, specifically, the referent of the main clause subject. According to Farkas’ analysis, propositional attitude verbs determine the context of evaluation, i.e. they introduce a world or a set of worlds with respect to which the proposition in the scope of these predicates is interpreted. Propositional attitude verbs are further divided into two groups: extensional and intensional predicates. Extensional predicates (*‘know’, ‘believe’*) introduce a single world, while intensional predicates
(‘want’, ‘wish’) introduce sets of worlds with respect to which the proposition in the
scope of the predicate is evaluated. Farkas proposes that extensional predicates select the
indicative, while intensional predicates select the subjunctive. The advantage of this
analysis is that it accounts for the fact that positive epistemic verbs (‘believe’), fiction
verbs (‘dream’), and declarative verbs (‘say’) select the indicative. The disadvantage of
Farkas’ proposal is that there are no independent criteria by which to decide whether a
particular verb is an intensional or an extensional predicate. For example, Farkas suggests
that desiderative predicates are intensional because they introduce a set of future worlds
(the future is unsettled, so the embedded proposition is evaluated with respect to the set
of possible worlds). At the same time, future-oriented verbs such as ‘promise’, which
select the indicative in Romanian, are analyzed as extensional predicates (Farkas
1994:94). Since the action promised is also in the future with respect to the time at which
the promise is made, it is difficult to see what motivates the difference in anchoring
properties of ‘want’ as opposed to ‘promise’ at the first place.91 Despite some drawbacks,
Farkas’ analysis has had significant influence on the subsequent literature on mood (cf.

Another group of approaches to mood distribution that deserves a mention in the

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91 Farkas analyzes promise as an extensional predicate based on the fact that an indefinite noun phrase in
its complement can serve as a discourse referent to pronouns in non-modalized sentences, an
assumption based on the idea of modal subordination (Roberts 1989). Thus in (i), the indefinite NP a
letter of recommendation is an antecedent to the pronoun it. Farkas maintains that if promise was in
intensional verb, the pronoun it would require a modal environment, i.e. a modal verb should or may.

(i) from Farkas 1992:99, ex. (40a)
I promise to write you a letter of recommendation.
It will be three pages long.
Farkas’ generalization holds if we assume that will, in the second sentence in (i), is non-modal. If,
however, we assume that will is modal, as do Smith (1978), Yavas (1982), Enç 91996), Copley (2002),
Condoravdi (2002), then the data in (i) would argue that promise is, in fact, an intensional verb. The
latter step would have negative consequences for Farkas’ analysis, since intensional verbs are predicted
to select the subjunctive, but promise selects the indicative.
context of this dissertation is based on the idea that the contrast between the indicative and the subjunctive should be analyzed in terms of assertiveness (Bolinger 1968, Terrel and Hooper 1974, Hooper 1975, Klein 1975). This idea was originally proposed in Bolinger (1968), and further developed in Hooper (1975) (cf. also Klein 1975, Lunn 1995, Bybee 1992, Palmer 2001).

Hooper (1975) proposes that the selection of mood in Spanish correlates with whether the content of the embedded clause is asserted or not. According to her proposal, “complements that are assertions, that is, complements to assertive verbs, have indicative verb forms. Non-assertive complements, that is, presupposed complements, complements to non-assertive verbs, and imperative complements to volitional verbs, all have subjunctive verb forms” (Hooper 1975:123). According to Hopper’s classification, the group of assertive predicates consists of weak assertives (think, believe), strong assertives (insist, claim) and semifactive assertives (find out, remember, see). The group of non-assertive predicates encompasses true factives (regret, forget) and non-factives (be possible). While this analysis accounts for the selection of the indicative by weak assertive predicates such as ‘think’, there are several problematic aspects of this proposal. As was pointed out by Farkas (1992), this analysis predicts that non-assertive verbs such as ‘regret’ and ‘know’ select the subjunctive but in fact both select the indicative in Romance languages (Farkas 1992:76), as well as in Balkan languages (cf. the discussion in chapter 10).

In conclusion, analyses that explain mood exclusively in terms of the meaning of matrix predicates capture important and robust empirical generalizations. Moreover, the
idea that mood selection depends on the context of evaluation, advocated by Farkas (1992), is essentially correct, despite the fact that it has different formal implementations in current analyses of mood. The main reason why these analyses cannot be implemented in their original form is the fact that they explain mood selection in terms of the properties of the main predicates alone. This assumption is problematic, as Giorgi and Pianesi (1997) have pointed out: if “[...] the choice between the subjunctive and the indicative were due only to the idiosyncratic selectional properties of the matrix predicate [...] then, for a given verb, the mood of the complement clause should be fixed once and for all” (Giorgi and Pianesi 1997). Current formal semantic analyses have shown that the analysis of mood requires a more elaborate modal semantic apparatus than what has been assumed in the previous literature. In what follows, I discuss recent trends in the analysis of mood distribution, focusing specifically on the analyses that are conceptually similar to the approach advocated here.


An influential analysis of mood based on the notion of veridicality has been advocated in a series of works by Giannakidou (1998), (2009). The main idea is that the distribution of mood depends crucially on what the relevant epistemic agents believes. Giannakidou proposes that the indicative is licensed in veridical contexts, while the subjunctive is licensed in non-veridical environments.

(209) Definition, from Giannakidou 1998
a. A propositional operator F is veridical iff \( Fp \) entails or presupposes that \( p \) is true in some individual’s epistemic model \( M_e(x) \); otherwise \( F \) is nonveridical.
b. A nonveridical operator F is antiveridical iff Fp entails that not p in some individual's epistemic model: Fp → ¬p in some M_E(x).

Consider now how this analysis accounts for mood selection in Greek. Epistemic verbs such as *pistevo* ‘believe’ commit the subject of the main sentence to the truth of the proposition expressed by the complement, as (210) shows:

(210) From Giannakidou (1998:114), ex. (40i)
\[
\llbracket pistevo (su, p) \rrbracket_s = 1 \Rightarrow \llbracket p \rrbracket_{MB(su)} = 1
\]

Thus, the sentence *Jacob believes that Ariadne loves Paul* (from Giannakidou 2009), commits Jacob to the truth of the embedded proposition, as shown in (211):

(211) From Giannakidou (2009:80, ex. (19)
\[
\llbracket Jacob believes that Ariadne loves Paul \rrbracket = 1 \text{ if } \\
\forall w [w \in M_E (Jacob) \rightarrow w \in \lambda w'.Ariadne loves Paul in w'],
\]
where M_E is the epistemic model of Jacob.

On the other hand, verbs such as *thelo* ‘want’ are non-veridical. As Giannakidou (2009) observes, “from *want (su, p)* we cannot infer that *p* is true in M_{Efut(su)}” Giannakidou (2009:8), where M_{Efut(su)} is the epistemic model of the subject.

(212) From Giannakidou (2009:8), ex. (21)
\[
\llbracket thelo (su, p) \rrbracket_s = 1 \Rightarrow \llbracket p \rrbracket_{M_{Efut(su)}} = 1
\]

Since the future is unsettled, only some of the future worlds will be *p*-worlds. Thus, the sentence *Jacob wants that Ariadne leave* is true if only some of the worlds in Jacob's epistemic model are *p* worlds, as (213) shows:

(213) From Giannakidou (2009:8), ex. (20)
\[
\llbracket Jacob wants that Ariadne leave \rrbracket = 1 \text{ if } \\
\exists w [w \in M_E (Jacob) \& w \in \lambda w'.Ariadne leaves in w']
\]

The main idea of Giannakidou’s analysis, namely, that beliefs of epistemic agents crucially affect the pattern of mood selection, has heavily influenced the analysis I...
proposed in the previous chapter. However, there are several factors about Bulgarian that suggest that Giannakidou’s idea requires a different formal implementation for Bulgarian.

First, in Giannakidou’s analysis an antiveridical operator is understood to be a non-veridical operator (More specifically, an antiveridical operator constitutes a subset of a veridical operator (Giannakidou 1998:112)). Thus, the analysis predicts that when the speaker/subject is committed to the falsity of \( p \), the subjunctive is licensed. There is a large group of predicates that implicate the falsity of their complements (cf. Karttunen’s 1971 negative implicative verbs). Some of them, such as \( izbjagvam \) ‘avoid’ select the subjunctive, but other verbs such as \( otričam \) ‘deny’, \( lāža \) ‘lie’ and \( prestruvam se \) ‘pretend’ select the indicative, as the example in (214) shows.

(214) Lāža [če sām došāl navreme].
\[ \text{Lie.3SG.PRES that be.1SG.PRES arrive.PERF.PLE on.time} \]
‘I’m lying about arriving on time.’

Greek is similar to Bulgarian in this respect, as the construction with the verb \( ekane \) ‘pretend’ shows.\(^{92}\)

(215) Greek:
\[ \text{O Kostas ekan-e det Kostas pretend.PERF-3SG.PAST} \]
\[ [oti / # na irth-e stin ora tu]. \]
\[ \text{that / # SUBJ arrive.PERF-3SG.PAST at time his} \]
‘Kostas pretends that he arrived on time.’

\( Ekane \) ‘pretend’ commits the attitude holder to the belief that the proposition expressed by the complement is false. This observation suggests that it might be the case that the notion of veridicality should be slightly modified to accommodate cases of negative

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\(^{92}\) Giannakidou (1998) observes that verbs such as \( arnume \) ‘deny’ and \( apagorevo \) ‘forbid’ are “nonveridical rather than antiveridical. If I deny that I saw Paul, this does not entail that I didn't see Paul (nor does it imply that I saw Paul, of course.” (Giannakidou 1998:116).
epistemic commitment. In the analysis I proposed in the previous section, the indicative operator simply presupposes that all worlds in the modal base are homogenous, i.e. all worlds are either \( p \) or not-\( p \) worlds.

The second aspect by which my analysis differs from Giannakidou’s concerns the distribution of mood in complements of perception verbs. Giannakidou analyzes perception verbs such as \textit{vlepo} ‘see’, \textit{akuo} ‘hear’ as veridical (cf. Montague 1969, Barwasie 1981), and her analysis correctly predicts that these verbs select the indicative.

\begin{align*}
(216) \text{Vlep-o} & \quad [\text{oti erxonte}]. \\
\text{see.IMPERF-1SG.PRES} & \quad \text{that come.IMPERF-1PL.NPAST} \\
& \quad \text{‘I see them coming.’}
\end{align*}

Similar to what we observed in Bulgarian, perception verbs in Greek can select the subjunctive.

\begin{align*}
(217) \text{Context: You and your sister are waiting for a couple of friends at the Union square. It is foggy and you cannot see well:} \\
\text{Vlep-o} & \quad [\text{na erxo-nte}]. \\
\text{see.IMPERF-1SG.PRES SUBJ come.IMPERF-1PL.NPAST} & \quad \text{‘I see them coming.’}
\end{align*}

Giannakidou (2009) argues that in such cases the subjunctive is selected as a last resort. She proposes that subjunctive complements of perception verbs, as well as to aspectual verbs such as \textit{arxizo} are not compatible with indicative complements, because indicative complements host an independent tense, while perception and aspectual verbs cannot host an independent tense. Since the subjunctive can satisfy the requirement for the defective temporal domain, it is selected in complements of perception and aspectual verbs.\(^{93}\)

\(^{93}\) Giannakidou (1998) shows that complements of aspectual verbs such as \textit{arxizo} ‘start’ and perceptual verbs such as \textit{vlepo} ‘see’ differ from complements of strong intensional predicates such as \textit{thelo} ‘want’ in three respects. First, the two groups differ in terms of their control properties, where control should be understood in terms of the identity relations that hold between the subject/object of the matrix clause and the embedded subject. Strong intensional verbs are non-obligatorily controlled, i.e. the referent of
such circumstances, “Greek will resort to the subjunctive for complements that correspond to “smaller” structures such as bare infinitives or gerunds.” (Giannakidou 2010:5, ft. 2).

The analysis I proposed in the previous section argues that perception verbs are lexically unspecified for commitment, and thus would select the subjunctive when the embedded subject might be different from the referent of the matrix clause subject, as (i) shows. On the other hand, perceptual and aspectual verbs are non-obligatorily controlled, as (ii) shows.

(i) From Giannakidou 1998:102, ex. (4):
Thelo na figo /na fiji o Pavlos.
Want.1SG SUBJ go.1SG/SUBJ go.3SG the Paul
‘I want to go/I want Paul to go.’

(ii) From Giannakidou 1998:102, ex. (5):
sinexise na xorevi / * na xorevo.
Kept-on.3SG SUBJ dance.3SG / SUBJ dance.1SG
‘She kept on dancing.’

The second difference between e.g. strong intensional verbs and verbs that select the subjunctive as a last resort concerns aspectual restrictions. The former do not have temporal or aspectual restrictions, while aspectual and perceptual verbs require that the aspect of the embedded predicate is imperfective (cf. (iii) vis-a-vis (iv):

(iii) From Giannakidou 1998:102, ex. (6):
Arxize na vrexi /* na vreksi.
Started.3SG SUBJ rain.IMPERF.3SG SUBJ rain.PERF.3SG
‘It started raining.’

(iv) Elpizo na erthi / na erxete o Pavlos.
Hope.1SG SUBJ come.PERF.3SG / SUBJ come.IMPERF.3SG the Paul
‘I hope Paul comes (today).’ / ‘I hope Paul comes (regularly).’

Finally, perceptual and aspectual verbs select the conjunction ke ‘and’ instead of the subjunctive marker na:

(v) From Giannakidou 1998:103, ex. (8a)
Arxizi ke vrexı
start.3SG and rain. 3SG
‘It starts raining.’

Based on this, Giannakidou 1995, 1998 argues that na in complements of perceptual and aspectual verbs should be understood not as the subjunctive na that appears in complements of strong intensional predicates, but as a deictic marker na, which is used to introduce salient discourse referents:

(vi) Na i Roxani!
Na the Roxanne
‘Here is Roxanne!’

Giannakidou 1995, 1998 argues that in examples such as (ii), (iii), and (vi) na is veridical. An analysis along these lines cannot be applied to Bulgarian. Similar to Greek, Bulgarian has a construction with the deictic marker that introduces a salient discourse referent: Eto ja Roxana! ‘Here is Roxanne’. However, in Bulgarian, the corresponding deictic particle eto is phonologically distinct from the subjunctive marker da. Therefore, there is no alternative analysis of da-clauses in complements of perceptual verbs other than the subjunctive. An alternative analysis is presented in Joseph (1981), where the subjunctive na in examples such as (iv) and the deictic na in examples such as (vi) are analyzed as different lexical
attitude holder is uncertain, but will select the indicative when the attitude holder is committed to the truth/falsity of the proposition expressed by the complement.

Finally, the two analyses differ in how the cases of the so-called polarity subjunctive (i.e. the subjunctive licensed by negation) are analyzed. According to Giannakidou’s analysis, the verb *pistevo* ‘believe’ is a veridical operator that selects the indicative, but not the subjunctive (cf. (210)). This analysis correctly predicts the contrast between (218a) and (218b)).

(218) Greek:
   a. Pistev-o 
      believe.IMPERFV-1SG.NPAST Janis 
      [oti z-i stin Athina o Jianis]. 
      ‘I believe that Janis lives in Athens.’
   b. # Pistev-o 
      believe.IMPERFV-1SG.NPAST 
      [na z-i stin Athina o Jianis]. 
      ‘I believe that Janis lives in Athens.’

Negation is an anti-veridical operator, as (219) shows:

(219) From Giannakidou 1998:116, ex. (44)
   [not p] c = 1 iff [p] MB(s) = 0

When negation applies to veridical matrix verbs such as *pistevo* ‘believe’, it changes the veridicality properties of the construction, so that neg + *pistevo* becomes non-veridical. Gianankdiou’s analysis correctly accounts for the fact that when negated, *pistevo* ‘believe’ selects the subjunctive, as shown in (220).
(220) Greek:
Dhen pistev-o
NOT believe.IMPERFV-1SG.NPAST
[na z-i stin Athina o Janis].
SUBJ live.IMPERFV-3SG.NPAST in Athens DET Janis
‘I don’t believe that Janis lives in Athens.’

However, if the negation makes the matrix verb non-veridical, then one needs to explain why negated veridical verbs also select the indicative, as in (221).

(221) Greek:
Dhen pistev-o
NOT believe.IMPERFV-1SG.NPAST
[oti z-i stin Athina o Janis].
that live.IMPERFV-3SG.NPAST in Athens DET Janis
‘I don’t believe that Janis lives in Athens.’

One possible strategy is to assume that in cases like (221), the negation applies after the verb has selected the indicative complement. Under such an analysis, the order of function application would be different for (220) and (221). In (220), the negation first applies to the matrix verb, and the negated predicate then takes the subjunctive complement. On the other hand, in order to account for (221), we will need to assume the veridical matrix verb first selects the complement, and the negation applies last. I am not sure whether this difference in the order of function application is motivated for Bulgarian. In the analysis presented in chapter 12, the negated epistemic verb selects the indicative or the subjunctive depending on the context.

To summarize, my analysis heavily depends on the notion of veridicality, a proposal advocated in Giannakidou 1998, 2009, but the main difference between Giannakidou’s (1998), (2009) analysis of the Greek subjunctive and the proposal advocated here for Bulgarian is that my analysis is more context dependent. This is
achieved by the assumption that the set of worlds with respect to which the embedded proposition is interpreted is determined by the two contextually sensitive operators: a modal base and an ordering source.

13.3 Villalta’s (2008) gradability-based analysis of Mood in Spanish

The core of Villalta’s proposal is the idea that the main function of the subjunctive mood is the evaluation of contextual alternatives. In her analysis, predicates that select the subjunctive form a natural class with respect to a single semantic property – “they establish a comparison.” (Villalta 2008:475). Villalta’s proposal for the mood distribution is summarized in (222).

(222) New hypothesis for the subjunctive mood in Spanish, from Villalta (2008:481), ex. (41)
A proposition \( p \) that is the complement of the matrix predicate requires the subjunctive mood iff the matrix predicate introduces an ordering relation between propositions and compares \( p \) to its contextually available alternatives.

The definedness conditions for the subjunctive specify that the proposition denoted by the complement is a subset of contextually available alternatives. To show how Villalta’s analysis works, consider the example in (223). The example is uttered in a context of the upcoming party preparation, and the speaker considers three alternatives of which food items Sofia could bring to the party: (i) Sofia brings a chocolate cake, (ii) Sofia brings ice cream, and (iii) Sofia brings an apple pie (from Villalta 2009:503). The example in (223), with the matrix verb \( \text{want} \) communicates that the speaker prefers a chocolate cake.\textsuperscript{94}

\textsuperscript{94} Villalta (2008) uses the example with the focused constituent inside the subjunctive complement, because her analysis of the subjunctive is conceptually similar to the analysis of focus in Rooth (1985). Similarly to Rooth’s focus operator, in Villalta’s analysis the subjunctive operator involves the comparison of contextual alternatives.
Victoria quiere que Sofía traiga UNA TORTA DE CHOCOLATE. Victoria wants that Sofía bring a cake of chocolate. ‘Victoria wants Sofía to bring A CHOCOLATE CAKE.’

The sentence has a semantic translation in (224).

\[ \lambda w'. \forall q: q \neq [\lambda w. \text{Sofía brings a chocolate cake in } w] \land q \in \{\lambda w. \text{Sofía brings a chocolate cake in } w, \lambda w. \text{Sofía brings an apple pie in } w, \lambda w. \text{Sofía brings ice cream in } w\}: [\lambda w. \text{Sofía brings a chocolate cake in } w] >_{\text{DES}} \text{Victoria}, w' q \]

According to (224), “among the relevant alternatives {‘Sofía brings a chocolate cake’, ‘Sofía brings an apple pie’, ‘Sofía brings ice cream’}, ‘Sofía brings a chocolate cake’ is the most desirable alternative to Victoria” (Villalta 2008:504).

The translation in (224) is derived through a number of function-application steps. Of particular interest here here is the derivational step at which the subjunctive takes as an argument the embedded proposition, represented in (225).

(225) \[ [[\text{MoodP}]]^{g_o} = [[\text{SUBJ}_C \text{ IP}_I]]^{g_o} \text{ is only defined if } \\
g(C) \subseteq [[\text{IP}_I]]^{g_{\text{ALT}}} = \\
\{\lambda w. \text{Sofía brings a chocolate cake in } w, \lambda w. \text{Sofía brings an apple pie in } w, \lambda w. \text{Sofía brings ice cream in } w\}.
\text{When defined, } [[\text{MoodP}]]^{g_o} = \lambda w. \text{Sofía brings a chocolate cake in } w \]

According to the definedness conditions of the subjunctive operator, the proposition in the scope of the matrix verb, Sofía brings a chocolate cake, is a subset of contextually available alternatives. The evaluation of contextually available alternatives syntactically takes place at the Mood Phrase node (MoodP). Truth conditionally, the subjunctive is an identity function; it returns the set of worlds in which the proposition Sofía brings a chocolate cake is true.
The main verb *want*, whose meaning is given in (226), specifies that among the propositions in the set of contextual alternatives, the proposition $p$, in the scope of *want*, is a more desirable alternative than the proposition $q$ for an epistemic agent $x$ in the world $w$. The most desirable contextual alternative in the context of (223) is the one in which Sofia brings a chocolate cake.

(226) \[ [\text{want}_c] \xi_p = \lambda p. \lambda x. \lambda w. \forall q: q \neq p \land q \in g(C) \land p >_{x,w} q \]

Where $>_w$ is defined as follows, adopted from Villalta (2008:479), ex. (35)

a. For any $w, w', w'' \in W, w' >_{x,w} w''$, iff $w'$ is more desirable to $x$ in $w$ than $w''$

b. For any $p \subseteq W, q \subseteq W, p >_{x,w} w''$, iff $\forall w'' \in q \exists w' \in p$ such that $w' >_{x,w} w''$, and it is not the case that $\forall w' \in p \exists w'' \in q$ such that $w'' >_{x,w} w'$.

Thus, similarly to the analysis proposed in the previous chapter, the semantics of *want* in Villalta’s analysis involve a notion of comparison, but unlike the analysis proposed in the previous chapter, in Villalta’s proposal, the ordering applies not to worlds but to propositions.

The definedness conditions for *want* specify that the proposition in the scope of the embedding verb is evaluated and ranked on the relevant scale (the nature of the scale depends on the meaning of the verb). The subjunctive operator provides a set of contextual alternatives, and guarantees that the proposition expressed by the embedded sentence is a subset of this set. This design allows Villalta to explain why verbs such as *want* select the subjunctive complement. This analysis, however, is not sufficient to account for mood distribution in Spanish. As Villalta points out, verbs that select the indicative can in principle also compare contextual alternatives, as shown in (227).
(227) From Villalta (2008:505), (116)

Victoria sabe que SOFIA trajo una torta de chocolate.
Victoria know that Sofía bring.PAST.IND.3SG a cake of chocolate.
‘Victoria knows that SOFIA brought a chocolate cake.’

In (227), the relevant set of contextual alternatives is {‘Victoria knows that Marcel brought a chocolate cake’, ‘Victoria knows that Rafael brought a chocolate cake’} (Villalta 2008:505). In order to prevent verbs such as know from selecting the subjunctive, Villalta proposes that the indicative operator imposes a restriction on the syntactic level where the evaluation of contextual alternatives can take place. More specifically, Villalta suggests that in the case of the indicative, the contextual alternatives are evaluated either above the clausal level, which is the case in (227), or at the subclausal level (the relevant constructions are sentences with the focus-sensitive only embedded in the subjunctive complement), but never at the level of MoodP. The desired effect is achieved with the assumption that when the indicative is selected, IP contains only one set, and hence is unable to provide material for the comparison. According to this proposal, the indicative operator “introduces the presupposition that if there is a contextually available set of alternatives included in the alternative semantic value of the IP immediately below MoodP, it only contains one single element, namely the ordinary semantic value of that IP. This constraint prevents a predicate such as want to combine with an indicative clause: a contextually available singleton-set is not sufficient for the interpretation of want” (Villalta 2009:506).

There are empirical and theoretical reasons for why Villalta’s proposal cannot be applied to Bulgarian and other Balkan languages. On empirical grounds, emotive-factive predicates such as radvam se ‘be glad’ select the indicative in Bulgarian (cf. also Siegel 341
Villalta’s analysis, which focuses on mood distribution in Spanish, predicts that verbs such as *be glad* would select the subjunctive but not the indicative. In her analysis the combination of *be glad* with the indicative is predicted to be impossible because of the condition encoded in the meaning of the indicative operator: since the IP contains only one element, its content is not sufficient for comparison to take place, yet the semantics of *be glad* requires the comparison of alternatives. In order to account for the Bulgarian pattern Villalta’s proposal would have to be modified, and I don’t see how her analysis can be extended to account for a different pattern of mood selection. Moreover, a more serious problem for Villalta’s analysis is the case where the same predicate selects both the subjunctive and the indicative complements. As the data in (228) show, negated epistemic verbs in Spanish, similarly to those in Bulgarian also select both indicative and subjunctive complements.

(228) Spanish (from Rivero 1971:306, ex. (1))
   a. Los corredores no creen que el belga ganara la carrera. (Subj.)
      ‘The runners don’t believe that the Belgian won the race.’
   b. Los corredores no creen que el belga ganó la carrera. (Ind.)
      ‘The runners don’t believe that the Belgian won the race.’

Villalta does not discuss cases of the double subcategorization, but the design of her analysis guarantees that the indicative and the subjunctive occur in complementary distribution. This assumption is problematic in light of the data in (228).

Finally, the core conceptual element of Villalta’s proposal, specifically, the idea that such notions as comparison and gradability govern mood distribution, deserves more careful scrutiny. Both Villalta’s proposal as well as my analysis are based on the idea that ordering is an important component of the mood phenomenon (to the best of my know-
ledge this idea was first articulated in Giorgi and Pianesi (1997), even though they did not provide any formal analysis). The difference between the two proposals is that for Villalta, the ordering is a central semantic principle. Thus, the main semantic contribution of the subjunctive operator is to enable the ordering of the contextual alternatives. In my analysis, on the other hand, the epistemic commitment of the speaker is the main component. Within the analysis I propose, the main contribution of the subjunctive is to ensure that the worlds in the modal base are not homogenous. While the ordering principle is important for my analysis is well – it restricts the domain of quantification – it is not the central mechanism. While both Villalta’s analysis and my proposal involve the notion of ordering, the two analyses are conceptually different. By not making the choice of mood contingent on the comparison of alternatives, my analysis can explain why the same verbs can select both the indicative and the subjunctive, as well as account for the contextual dependency of mood on epistemic commitment of the attitude holder.

13.4. Summary

This chapter provided an overview of the main ideas advocated in the previous literature on mood. Section 13.1 discussed several main trends in the previous literature, namely the analyses that attribute the choice of mood to a realis/irrealis distinction (cf. Givón 1994), to extensional/intensional properties of matrix verbs (Farkas 1992), or analyze it in terms of assertiveness (e.g. Hopper 1975). Sections 13.2 and 13.3 discussed two analyses of mood that are similar to the analysis I proposed for Bulgarian in chapter 12. Section 13.2 discussed Giannakidou’s (1998), (2009) analysis of mood in terms of veridicality. While the veridicality-based analysis is essentially correct, I propose a
different formal implementation for Bulgarian. Section 13.3 discussed Villalta’s (2008) analysis of the subjunctive mood in Spanish. While my proposal is similar to Villalta’s analysis in that both involve the notion of ordering, the two analyses are conceptually different. In my analysis of mood, the notion of epistemic commitment/veridicality is the central component, while for Villalta, the crucial concept is that of ordering. I showed that the analysis of mood in terms of ordering cannot be applied to Bulgarian.

In the next chapter, I summarize the findings of this dissertation and discuss its wider implications.
CHAPTER 14: CONCLUSIONS

14.1 Evidentiality and mood as expressions of epistemic commitment

This dissertation focused on two phenomena, evidentiality and mood in Bulgarian. Each of them independently represents a research-worthy topic, as they raise important questions that pertain to the formal analysis and the conceptualization of these grammatical categories in the theoretical linguistic literature. However, it is only when these two seemingly distinct phenomena are considered together that surprising similarities emerge, and a larger scale implication about the function of evidentiality and mood in a grammar of a particular language can be drawn.

The main claim of the dissertation is that both evidentiality and mood are best analyzed as elements belonging to the domain of epistemic modality. Despite the apparent differences, both the evidential system and the mood system provide an inventory of modal tools that allow speakers of the language to express the strength of epistemic commitment, i.e. the assessment of an event or a situation by an epistemic agent in terms of its likelihood.

The discussion in the previous chapters suggests that the degree of epistemic commitment is expressed on a scale, ranging from the strongest positive commitment that the proposition \( p \) expressed by the sentence is true to the strongest negative commitment that \( p \) is false. The default indicative mood expresses the strongest values on both poles,
i.e. the attitude holder’s commitment to the truth and to the falsity of the proposition. The weaker epistemic commitment area is managed by evidentials, the subjunctive mood, and other modal elements such as epistemic modals.

Consider now the division of labor in the area of weaker epistemic commitments. Direct and inferential evidentials generally commit the attitude holder to the belief that \( p \) is true, yet the strength of the epistemic commitment is weaker than that expressed by the indicative forms. The contrast between the evidential construction in direct/inferential evidential contexts and the indicative construction amounts to the difference between constructions with necessity epistemic modals and plain indicative sentences, e.g. *It must be raining* vs. *It is raining*. The evidential construction in reportative contexts, on the other hand, expresses the commitment on the part of the original reporter. Thus, the reportative evidential sentence is non-committal as far as the speaker is concerned.

The subjunctive mood expresses the degree of commitment relativized to a particular attitude, such as memory, perception, joy, etc. The commitment expressed by the subjunctive is weaker than the commitment expressed by the indicative; the subjunctive is consistently associated with lower certainty.

### 14.2 Wider implications and future work

Even though this dissertation focused exclusively on Bulgarian, I believe that the results of the analysis have wider empirical and theoretical implications.

On the empirical side, this study sheds light on evidentiality, mood, and epistemic modality in Bulgarian. It is my hope that the data presented in this dissertation can also contribute to a better understanding of these phenomena in the neighboring Balkan
languages. Thus, the Bulgarian data presented in this dissertation could serve as the basis for the comparison between e.g. the evidential systems in Albanian, Turkish, Macedonian, and Romanian or for the comparison of mood systems in Albanian, Macedonian, Greek and Romanian. Such a comparative analysis would have interesting implications for the Balkan contact linguistics. Due to the historical socio-political situation in the Balkans, the structures of these languages converged over time (Joseph 1992). Thus, Bulgarian, a Slavic language, differs from its immediate relatives in the Slavic subgroup in that it grammatically evidentiality, and has an elaborated temporal system which is more similar to other Balkan languages such as Greek and Albanian than to its Slavic relatives. Despite massive structural convergences (cf. Joseph 1992), the languages in the Balkan Sprachbund still differ from one another (cf. Rudin et al. 1999 on Bulgarian and Macedonian li-questions, Friedman 2004 on Albanian and Bulgarian evidential systems, Smirnova 2010 on tenses in Albanian and Bulgarian). The comparative study of how the languages of the Balkan Sprachbund differ could thus offer key insights into how grammatical systems are affected under conditions of language contact, and why certain features change (cf. the loss of the infinitive), while others remain stable (cf. Nichols 1992 on stability and dynamism of grammatical systems).

Such a cross-linguistic exploration of lesser studied languages can provide important theoretical insights. As pioneering work by e.g., Matthewson (2006) on St’át’ímcets, Tonhauser (2006), (2007) on Paraguayan Guarani, Bittner (2001), (2009) on Kalaallisut has shown, research of understudied languages can affects our theoretical conceptualization of various linguistic phenomena. I hope that the results of this study
will contribute to a better understanding of the grammatical means by which epistemic modality is expressed in natural language.

Foundational work by Kratzer (1981), (1991), who developed formal tools for the analysis of modal expressions, stimulated significant interest in the domain of modal semantics (cf. Roberts 1989 on modal subordination, Condoravdi 2002, von Fintel and Gillies 2008, von Fintel and Iatridou on modals in English). The work on modals has enriched the conceptualization and formal theoretical analysis of other phenomena, which, traditionally do not belong to the domain of epistemic modality. For example, Dowty (1979) and Portner (1989) have shown that the progressive in English is best analyzed as encoding a modal component. Portner’s analysis specifically employs both a modal base and an ordering source in the analysis of the English progressive. Similarly, in her work on evidentiality in Bulgarian, Izvorski (1997) has proposed that evidentials are best understood as grammatical expressions of epistemic modality. In the spirit of the previous work, the analysis presented in my dissertation expands the boundaries of epistemic modality and shows that modal verbs and adverbs are not the exclusive members in this category. In Bulgarian, two grammatical categories – evidentiality and mood – are designated markers of epistemic commitment.

This finding raises the following questions that I hope to address in the future work. First, what is the nature of the interaction and how labor is divided between different expressions of epistemic modality in natural language, such as modals, evidentials, mood, etc? Second, I note that all languages have grammatical means to express such concepts as certainty. Is there a difference between lexical and grammatical strategies to express
epistemic commitment and do languages favor one over the other?

On a more general scale, linguistic inquiry into the domain of epistemic modality contributes to a better understanding of language as a cognitive phenomenon. Epistemic modals, evidentials, and grammatical moods are linguistic expressions that encode as part of their semantics an evaluative component, and thus squarely fall into the group of linguistic elements that show displacement (cf. Hockett 1969). A better understanding of language and its psychological foundations requires deeper knowledge about similarities and differences in the ways in which speakers of different languages express evaluative judgment and epistemic commitment.
APPENDIX A: MOOD SELECTION IN COMPLEMENTS OF PROPOSITIONAL ATTITUDE VERBS IN BULGARIAN

<table>
<thead>
<tr>
<th>Group 1: Factive verbs</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Znam 'know'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Otrkivam 'discover'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Zabežjavam 'notice'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Osâznjavam 'realize'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Naùčavam 'learn'</td>
<td>√</td>
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<tr>
<th>Group 2: Emotive factive</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sâžaljavam 'regret'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Strahuvam 'be afraid'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Radvam 'be glad'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Iznenadvamam 'be amazed'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Učudvam 'be amazed'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Gordeja 'be proud'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Jadosvam 'be angry'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Negoduvam 'resent'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Mrazja 'hate'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Obicham 'love'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Haresvam 'like'</td>
<td>√</td>
<td>#</td>
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<tr>
<th>Group 3: Epistemic</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mislja 'think'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Smjatam 'think'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Vjarvam 'believe'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Dokazvam 'prove'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Priznavam 'confess'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Syglasjavam 'agree'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Priemam 'accept'</td>
<td>√</td>
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<tr>
<th>Group 4: Reportative verbs</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
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<tbody>
<tr>
<td>Kazvam 'tell'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Tvârdja 'claim'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Otričam 'deny'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Lâža 'lie'</td>
<td>√</td>
<td>#</td>
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<tr>
<th>Group 5: Strong epistemic commitment verbs</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
</tr>
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<tbody>
<tr>
<td>Sigurno 'certain'</td>
<td>√</td>
<td>#</td>
</tr>
<tr>
<td>Očevidno 'obvious'</td>
<td>√</td>
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<tr>
<th>Group 6: Perception verbs</th>
<th>Verb IND p</th>
<th>Verb SUBJ p</th>
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<tbody>
<tr>
<td>Viždam 'see'</td>
<td>√</td>
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<tr>
<td>Group 7: Epistemic assessment verbs</td>
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<td>-------------------------------------</td>
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<tr>
<td>Čuvam 'hear'</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Useštam 'feel'</td>
<td>✓</td>
<td></td>
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<tr>
<th>Group 8: Volitional verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iskam 'want'</td>
</tr>
<tr>
<td>Želaja 'want'</td>
</tr>
<tr>
<td>Kopneja 'long for'</td>
</tr>
<tr>
<td>Nadjavam se 'hope'</td>
</tr>
<tr>
<td>Štremja se 'aim'</td>
</tr>
<tr>
<td>Molja se 'ask'</td>
</tr>
<tr>
<td>Predpočitam 'prefer'</td>
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<tr>
<th>Group 9: Directive verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karam 'urge'</td>
</tr>
<tr>
<td>Zabranjavam 'forbid'</td>
</tr>
<tr>
<td>Prinuždavam 'force'</td>
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<tr>
<th>Group 10: Weak epistemic commitment verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sâmnjavam se 'doubt'</td>
</tr>
<tr>
<td>Vyzmožno e 'be possible'</td>
</tr>
</tbody>
</table>


