Complex verbs between syntax and morphology in Bulgarian

Комплексные глаголы между синтаксисом и морфологией в болгарском языке

Hagen Pitsch

Abstract This paper develops a theory of Bulgarian sentence and verb complex structure based on lexicalist minimalist assumptions, Bierwisch's theory of Verb Cluster Formation (VCF), and the Two-level Theory of Meaning which distinguishes grammatically determined meaning from extralinguistically determined meaning. It is argued that both *ще* and *да* are modal particles marking specific types of verbal mood. They are connected with the verb in a zone between morphology (lexicon) and syntax, namely through the process of VCF. This also holds for the clitic auxiliaries within perfect tense formation. Furthermore, the Complementizer Phrase (CP) is assumed to be the place where existential quantification of the predicate's event variable is marked in syntax (going hand in hand with existential presupposition). *Да*-expressions are analyzed as Modal Phrases (ModPs) lacking a CP layer, from which it can be concluded that there is no existential presupposition. It is assumed that the latter takes place only on the level of Conceptual Structure due to extragrammatical factors such as the speaker's world knowledge. This approach can explain the interpretational differences between *че*-sentences and *да*-expressions. Also, a lexicalist way of accounting for the different selectional properties of matrix predicates is presented.

Аннотация В данной статье предлагается теория о структуре предложения и глагольного кластера в болгарском языке. Используются минималистские предположения, лексикализм, теория формирования глагольного комплекса, разработанная лингвистом Bierwisch, а также 'теория двух уровней значения', отличающая грамматически определенное значение от значения, определенного внеязыковыми факторами. Предполагается, что *ще* и *да* являются специфическими реализациями глагольного наклонения, т.е. модальными частицами. Они сочетаются с глаголом между морфологией и синтаксисом, а именно в результате формирования глагольного комплекса. Таким же образом сочетаются и клитические вспомогательные глаголы с глаголом, из чего возникает *минало неопределено време* ('перфект'). Предпола-

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гается, что проекция комплементайзера (CP) является местом, где реализуется экзистенциальная квантификация переменной события данного предиката (предположение о существовании выражаемой пропозиции). С синтаксической точки зрения видно, что *∂a*-конструкции—модальные фразы (ModPs), у которых нет проекции CP. Из этого следует, что невозможно предположение о существовании (*existential presupposition*). Последнее может происходить только на уровне семантической репрезентации, называемой 'концептуальной структурой', т.е. в зависимости от внеязыковых факторов. Данный подход способен объяснить интерпретативные различия между *че*-предложениями и *∂a*-конструкциями. Предлагается также формальное описание трех видов предикатов с вариантами использования *че*-предложения и (или) *∂a*-конструкции.

1 Introduction

The present paper aims at developing a theory which is able to account for Bulgarian sentence structure with special respect to object clitics, complex tenses (*ще*-future, present and past perfect tense, future perfect tense), *∂a*-expressions and *че*-sentences. The semantic difference between the latter two types of complement sentences will be paid special attention. The mentioned goals are pursued resting on the theoretical framework of minimalism, lexicalism and the theory of Verb Cluster Formation (Bierwisch 1990). Additionally, the Two-level Theory of Meaning, which enables one to distinguish intragrammatical from extragrammatical semantic factors in the course of interpretation, will play a crucial role.

2 Grammar model

I assume a modular grammar in the lines of the Minimalist Programm (cf. Chomsky 1995). Several heterogeneous modules interact with each other via what are known as interfaces, which allow information of one module to be processed by another. Syntax is one of these modules. I argue it to be a computational system to combine lexical items. This, in turn, yields representations that can serve as input for two performance systems: the conceptual-intentional as well as the articulatory-perceptual system.

Crucial to the present theory of Bulgarian syntax will be an account proposed by Bierwisch (1990), namely that of Verb Cluster Formation, whereby complex verbal heads are formed in a quasi-morphological intermediate zone between syntax and the lexicon.

3 Lexical entries

I take a lexicalist position in assuming that argument structure is encoded in lexical entries stored in the mental lexicon. Following Bierwisch (1990, 1996, 1997, 2006, 2007) and Wunderlich (1997), a lexical entry consists of four blocks of information: phonetic form (PF), categorial features, argument structure (AS), and semantic form (SF), cf. (1):[1]

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[1]In (1), phonetic form and grammatical (categorial) features are omitted. $x_n \ldots x_1$ are argument variables bound by lambda abstractors, e is the event variable (the referential argument of the verb, cf. Davidson

(1) $\lambda x_n \ldots \lambda x_1 \lambda e$ [e INST [...]]
       ....
       AS   SF

As part of its lexical entry, SF represents the grammatically determined meaning of a lexeme. It consists of items with a fixed interpretation (basic predicates) and of argument variables.

In AS, thematic roles are encoded by lambda abstractors binding variables in SF. Thematic relations (the hierarchy of roles: agent, theme, beneficiary etc.) follow from the relative SF-positions of argument variables, and the AS-position of the corresponding lambda abstractors binding them (cf. Junghanns 2008).

I follow the Two-level Theory of Meaning (see Bierwisch 1983, 1987; Bierwisch and Lang 1987; Dölling 1997; Lang 1987; Maienborn 1997) distinguishing the representational level of SF from the one of Conceptual Structure (CS), which brings into effect world knowledge as well as contextual coherences (cf. Zimmermann 2009, 484).

4 Sentence structure

Every sentence is based on a lexical VP. Verbal arguments are syntactified according to the verb's lexical entry. The VP is equipped with a functional superstructure where grammatical categories are represented by phrases. Their heads are specified in terms of syntactic features. I argue that lexical items enter syntax fully inflected. For the derivation to succeed, all features must be properly checked. Checking takes place via agreement relations, i.e., lexical items that have to check their features do not necessarily have to move.

I assume the following fixed order of projections constituting a Bulgarian sentence:

(2)   CP > ModP > PolP > T/AgrP > $Agr_{IO}P$ > $Agr_{DO}P$ > VP*

In CP, sentence type (main or complement sentence) and sentence mood (declarative, interrogative, imperative) are encoded. With Zimmermann (2009), I assume that ModP is associated with verbal mood. It contains modal features which have to be checked in the course of derivation.[2] The head of Pol(arity)P is responsible for distinguishing affirmative from negated sentences. T(ense)/Agr(eement)P is responsible both for verbal tense and subject agreement.[3] Finally, in case of the presence of internal arguments, $Agr_{DO}P$ and/or $Agr_{IO}P$ contain the respective object agreement (and case) features which must be checked by the verb (which is marked for object agreement by object clitics, see Sect. 6) as well as by the lexical object expressions themselves (DP if direct object, PP if indirect object; see Junghanns and Lenertová 2008).

1980 [1969]). *INST* is an instantiation functor relating the proposition [...] with an event in the extralinguistic world. Apart from the mentioned components, I assume that a verbal lexical entry also contains information determining the accent as well as the conjugation pattern the respective lexeme belongs to. I assume the category of verbal aspect to be lexical. For the sake of clarity, however, aspect semantics is omitted throughout this paper.

[2]Modal phrases are also assumed by Rivero (1991, 1994), Bošković (2001), Tomić (2004a), and Dippong (1996).

[3]The label 'Agr/TP' is used, e.g., by Tomić (2004a).

5 Verb cluster formation

Bierwisch (1990; see also Steube 1995) proposes that modal and auxiliary verbs in German form a verb cluster with the basic verbal predicate under V. According to him, the resulting verb complexes "must be considered as boundary phenomena between syntax and morphology, such that verb cluster formation is only a quasi-morphological process" (Bierwisch 1990, 192).[4] I will try to show that this approach can be generalized with respect to Bulgarian clitic elements and their behaviour and positioning in the 'verb complex'. Since verb cluster formation (VCF) takes place between lexicon (morphology) and syntax, it may explain why clitics share characteristics both of affixes and syntactic constituents without being exactly one of them, cf. (3):

(3)   lexicon   →   VCF   →   syntax
       (affixes)   (clitics)   ('words')

If a verbal form contains clitics, the basic configuration will be a complex adjunction structure composed of several V-heads containing one verbal element each (cf. Werkmann 2003, 75). This proposal is modelled in (4). Note that the placement of clitics within the verb cluster is assumed to be subject to subcategorizational information of the respective clitic lexemes (see Zec and Inkelas 1990 for a possible technical account).

(4)   [$_V$ cl [$_V$ cl V*]]

I propose that the Bulgarian verb complex is built via VCF. I assume that this holds for the following clitic elements: object clitics, the negation particle, present tense auxiliary forms, and (the modal particles) *ще* as well as *∂а*.

6 Object clitics

Following several authors, the presence and order of object clitics as well as the phenomenon of clitic doubling can be explained syntactically in terms of agreement phrases (AgrPs) (cf. Stjepanović 1998a, 1998b, 1999; Bošković 2000, 2001; Werkmann 2003; Sportiche 1996; Tomić 2004a for Bulgarian and other South Slavic and Balkan languages; Toman 1999 for Czech; Kaiser 1992 for Romance languages). These are commonly assumed to be located directly above VP. Their heads contain the object related case and phi- (and possibly more) features against which the object expressions check their own features. Additionally, object clitics are said either to be overt realizations of the Agr-heads, or to be moved into them (or their Spec-positions) from inside the post-verbal object phrases.

There are three possible realization forms of objects in Bulgarian: (a) lexical DPs or pronouns, (b) only anaphorical object clitics, or (c) DP/pronoun plus object clitic (clitic doubling); cf. the corresponding examples in (5a) to (5c):[5]

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[4]Cf. also Chvany (1975, 91) who, in order to account for copular constructions, allows for the possibility that predicative words are listed in the lexicon as idioms of the form [V V]$_V$ where the first V is [+V,−N] (the copular verb) and the second V is [+V,+N] (the predicative). Clearly, this can be considered as being already in the same lines as Bierwisch's (1990) VCF analysis.

[5]The following abbreviations will be used in the glosses: acc = accusative case, aor = aorist, aux = auxiliary, cl = clitic, dat = dative case, def = definite, f = feminine, imp = imperative, imperf = imperfect, lpt = l-participle, m = masculine, n = neuter, neg = negation, past = past tense, pl = plural, prep = preposition, sg = singular.

(5) a. Иван / него   назначиха.
         Ivan / him.acc   engaged.aor.3pl
         'They engaged Ivan/him.'

     b. Назначиха   го.
         engaged.aor.3pl cl.acc
         'They engaged him.'

     c. Иван го   / него   го   назначиха.
         Ivan cl.acc / him.acc cl.acc engaged.aor.3pl   (Nicolova 1986, 49, 53,
         'It's Ivan/it's him that they engaged.'   cited after Werkmann 2003, 171)

In any case, object clitics have to appear adjacent to the verb.[6] If there is both a dative
and an accusative object clitic, they appear in the fixed order dative > accusative. As
proposed by Tomić (1996), Bulgarian object clitics are syntactically proclitic (with respect
to the verb), but phonologically enclitic (phonological 'allegiance'), i.e., they need non-
clitic material to the left of them. Thus they cannot appear sentence-initially. I propose
that the latter phenomenon results from a PF operation which takes place post-syntactically
(see Halpern 1995; Bošković 2001; Embick and Noyer 2001). I thus assume a basic order
in which clitic elements are introduced in the course of VCF which can be altered on
PF due to phonological subcategorization such that eventually the surface word order will
arise.

   I reject the AgrP-analysis insofar as I do not assume the object clitics to originate in
(or move into) the AgrPs. Instead, I take object clitics to represent verbal object agree-
ment quasi-morphology. Thus they are similar to (person/number) affixes, but are not
attached to the verbal stem in the lexicon (i.e., morphologically) but via VCF (i.e., quasi-
morphologically). Under specific circumstances, which cannot be subject to the present
study in detail, they occur to mark the verb for referring to a direct or indirect object
(cf., e.g. Werkmann 2003 with a detailed featural account). I propose them to be the first
elements to form a cluster with the verb under V because they refer to the verb's internal
arguments.

   I assume the following VCF-analysis for examples (5b) and (5c):

(6)   [$_V$ го назначиха]

      [$_{AgrDO}$ го]   [$_V$ назначиха]

I suppose that object clitics do not contain case features. Rather, their case-like appearance
is due to diachrony. They are equipped with a set of phi-features corresponding to the one
of the object which is referred to (DP/pronoun). In the case of (5b), where the object is not
marked as a topic, they can express reference to an object anaphorically without this object
being mentioned at all. I assume that object clitics contain (at least) an additional feature
[±top(ical)] (and, possibly, also a feature [±spec(ific)], see Werkmann 2003). Concerning

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[6]The only element which can intervene between object clitics and the verb is the third person singular
auxiliary *e* '(s/he) is', which is, however, also a clitic form. Apparently, *e* has a special PF subcategorization
differing from the one of the rest of the forms of the present auxiliary *съм* 'be'.

such notions as topic and focus, I refer to the model of information structuring lined out in Junghanns and Zybatow (1997), Junghanns (2002), Zybatow and Junghanns (1998).
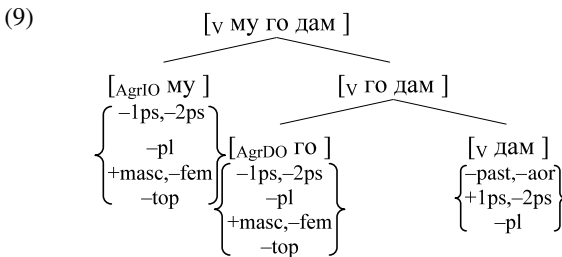
If the object expression is overtly realized and marked as the topic of the sentence, the object clitic occurs due to the mentioned feature(s). Cf. again example (5c), repeated as (7):

(7) Иван[TOP] [го[+top] назначиха].   (= 5c)
     'It's Ivan that they engaged.'

In example (8) below, there are two anaphorical object clitics. They appear in the above-mentioned fixed order dative > accusative. Since there is non-clitic material to the left of them, they are appropriately phonologically 'tied' in the sense of Tomić (1996) and no post-syntactic PF operation will have to take place:

(8) Аз   му   го   дам.
     I   cl.dat cl.acc give.1sg
     'I give it to him.'

With respect to (8), I suppose that the complex V resulting from VCF has the internal structure as given in (9):

(9)

$$[_V \text{ му го дам }]$$

$[_{AgrIO} \text{ му }]$ $[_V \text{ го дам }]$

$\begin{Bmatrix} -1ps, -2ps \\ -pl \\ +masc, -fem \\ -top \end{Bmatrix}$ $[_{AgrDO} \text{ го }]$ $[_V \text{ дам }]$

$\begin{Bmatrix} -1ps, -2ps \\ -pl \\ +masc, -fem \\ -top \end{Bmatrix}$ $\begin{Bmatrix} -past, -aor \\ +1ps, -2ps \\ -pl \end{Bmatrix}$

The complete V will have (at least) the semantic and featural content given in (10):

(10) V: $\begin{Bmatrix} \text{SF:} & [e \text{ INST } [x \text{ CAUSE } [y \text{ HAVE } z]]] \\ \text{T/Agr:} & [-past, -aor, +1ps, -2ps, -pl] \\ \text{Agr}_{DO}: & [-1ps, -2ps, -pl, +masc, -fem, -top] \\ \text{Agr}_{IO}: & [-1ps, -2ps, -pl, +masc, -fem, -top] \end{Bmatrix}$

In the course of subsequent syntactic derivation, all features have to be checked against the respective functional heads: the Agr_O-features against the Agr_O-heads, and the T/Agr-features against T/Agr. Thus, although I assume Agr_OPs in syntax, I neither assume object clitics to originate in them, nor that they are moved into them from inside the object phrases. Instead, object clitics are (quasi-morphological) verbal object agreement markers and, as such, are added to the verbal stem in the course of VCF.

7 Simple tenses

The Bulgarian simple (synthetic/non-periphrastic) tense system can be outlined as follows in Table 1:

Table 1 Bulgarian tense system

	Present tense	Past tense	
		Imperfect	Aorist
Imperf.	плащам	плáщах	плащáх
	'I pay'	'I paid'	'I paid'
Perf.	платя	платях	платих
	'I pay'	'I paid'	'I paid'

I assume that all these forms are derived in the lexicon where stems are equipped with affixes. Without going into detail concerning their concrete formation, I assume that they enter VCF under V as a whole.

Importantly, both verbal aspect and aorist/imperfect (cf. Busch 1960, 47–86) marking are proposed to be lexical operations. Verbal stems marked for aspect denote the event to be viewed by the speaker either as 'perfectively' or 'imperfectively'. Verbal stems marked for *Aktionsart* denote the event as being in the past, namely either as an event finished in the past (aorist) or as an event going on in the past (imperfect) (cf. Pašov 1994, 116–120). Both categories interact in such a way that e.g. present and imperfect tenses, if used 'independently' (i.e., in main sentences) are usually formed from the imperfective aspect (cf. Krăstev 2005, 107). I propose that the syntactic tense feature in (11) corresponds to this situation:

(11)   T: [±past,±aor]

The three simple tenses can, thus, be represented as in (12):

(12)   a.   present tense: [−past,−aor]
       b.   imperfect tense: [+past,−aor]
       c.   aorist tense: [+past,+aor]

The combination [−past,+aor] is ruled out in Bulgarian.[7] The ditransitive structure in (8) can, hence, be accounted for with respect to all simple tenses in Bulgarian in one and the same way, namely as shown in (13) (features omitted):

(13)   [$_V$ му го {дам/дадох/дадях}]

    [$_{AgrIO}$ му]   [$_V$ го {дам/дадох/дадях}]

              [$_{AgrDO}$ го]   [$_V$ {дам/дадох/дадях}]

Since the verbal forms are specified for tense in the lexicon, the complex V resulting from VCF will already be equipped with a syntactic tense feature. T/Agr is also equipped with a tense feature against which the one of the V-head can be checked (see Sect. 10 for perfect tense).

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[7]This is opposed to, e.g., Modern Greek, which exhibits 'present aorist' forms of verbs, used predominantly in modal embedded sentences (with the particle *na*). By this, aorist usage in Modern Greek patterns by and large with perfective aspect usage in Bulgarian, and Modern Greek *na*-constructions are similar to Bulgarian ∂a-constructions.

Table 2 *ще*-future

	'write'	'work'
	(аз) ще пиша	(аз) ще работя
	'I will write'	'I will work'
	…	…
	(те) ще пишат	(те) ще работят
	'they will write'	'they will work'

8 Future tense

The Bulgarian future tense (*ще*-future) is formed by adding the proclitic particle *ще* (related to Old Church Slavonic *xotěti* 'want') to a verb equipped with present tense morphology. Cf. the paradigms in Table 2.

A straightforward way to analyze these forms by VCF is shown in (14), where the concrete nature of *ще* is left undetermined (X):

(14)

$$[_V \text{ще пиша}]$$
$$[_X \text{ще}] \qquad [_V \text{пиша}]$$
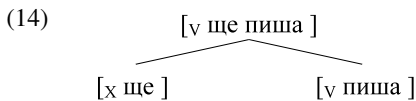
If one assumes the particle *ще* to be associated with a future tense feature (such as, e.g., [−past,+fut]), this representation yields a feature conflict, since there are two tense features, only one of which can be checked against T/Agr in the course of subsequent syntactic derivation. Apart from that, as proposed above, tense should be parametrizable by means of the features [±past,±aor], i.e., without assuming a future tense feature.

I conclude that *ще* is not associated with a future tense feature. I rely on various linguists arguing that the future tense is rather a modal than a temporal category (e.g., Kuryłowicz 1956; Janakiev 1962; Lyons 1968; Kramer 1992; Smirnova 2010).[8] If this is true, *ще* is not a future, but a modal particle (cf. also Tomić 2004b; Rivero 1994).

At this point, the nature of ModP must be dealt with in more detail. I propose that the content of Mod should be captured with the featural combination in (15):

(15)　Mod: [±cert(ain),±prosp(ective)]

The setting [+cert] (as 'certainty', cf. Siegel 2009) can be paraphrased as the subject referent's evaluation of (or attitude towards) the proposition expressed, namely such that s/he is certain about its reality or truth. Like Zimmermann (2009), I assume that verbal
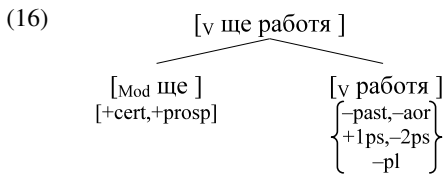
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[8]In particular, Kuryłowicz (1956, 26) posits the future on a modal level as opposed to the indicative level represented by present and past. Janakiev (1962, 427) assumes that the Bulgarian future is marked for presumption, hypotheticality etc. Lyons (1968, 310) claims that future is an intersection between mood and tense. Finally, Kramer (1992, 115) assigns Macedonian *ќe* the denotation of a 'projective mood'. Recently, Smirnova (2010, 108) noted that the Bulgarian future marker *ще* "is used for a future episodic reading", which can also be interpreted in a modal way. As I will show below, this is (at least partially) the reason why the *ще*-future is incompatible with *∂a*-expressions.

mood is represented in Mod. I conclude that the feature [±cert,±prosp] can be identified with verbal mood.[9]
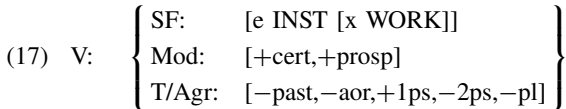
Since *ще* is a modal particle, it is connected to Mod.[10] Specifically, I propose that it expresses a specific modal meaning which I will refer to as 'prospective' ([+prosp]). It expresses the denoted act or state to be expected to take place (be true) at a moment in the future (cf. Pašov [1994], 121). I believe that it leads to the observable future-like interpretation of the construction.[11] From the fact that it can be present only if [+cert], one can conclude that the subject referent must be certain about the truth of the expressed proposition in order to project it into a future moment.[12]

Naturally, this implies that there are also the combinations [+cert,−prosp] and [−cert,−prosp]. The former corresponds more or less with the 'indicative' mood. It represents the unmarked setting of Mod and is, as such, left without overt realization. The latter roughly corresponds with the 'conjunctive/subjunctive' mood and is marked by the modal particle *да* (see Sect. 9).

To conclude, I propose that *ще* is a clitic prospective modal marker forming a complex with the verb via VCF. The representation in (14) can now be completed as in (16):

(16)

$$[_V \text{ ще работя }]$$

$$[_{Mod} \text{ ще }] \qquad [_V \text{ работя }]$$
$$[+cert,+prosp] \qquad \begin{Bmatrix} -past,-aor \\ +1ps,-2ps \\ -pl \end{Bmatrix}$$

If V is complete at this stage, it will have the content given in (17):

(17) V: $\begin{Bmatrix} \text{SF:} & [\text{e INST } [\text{x WORK}]] \\ \text{Mod:} & [+cert,+prosp] \\ \text{T/Agr:} & [-past,-aor,+1ps,-2ps,-pl] \end{Bmatrix}$

9 *Да*-expressions

Significantly, in Standard Bulgarian, *ще* and *да* can by no means co-occur, cf. (18):

(18) a. *тя *ще да* работи
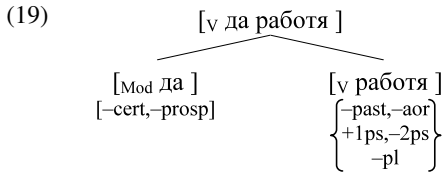
      b. *тя *да ще* работи

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[9]In Bulgarian grammar writing, *да*-expressions have been analyzed as 'analytic conjunctive/subjunctive' by, e.g., Weigand ([1907]), Seliščev ([1952]), Maslov ([1955]), Bernštejn ([1961]). However, these proposals have been met with strong refusal by, e.g., Mladenov ([1929]), Andrejčin ([1944]), Popov ([1963a], [1963b]).

[10]Cf. also Rivero ([1994]) who locates *ще* in the head of a modal phrase directly below CP, although she does not specify its concrete content.
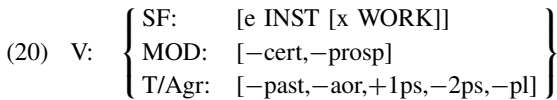
[11]I believe that both Kramer's ([1992], 115) term 'projective mood' and Smirnova's ([2010], 108) notion of 'future episodic reading' for *ще* are in the same lines as the present analysis.

[12]The negative setting [−cert] cannot co-occur with [+prosp]. I assume that this is related to the modal semantics ('probability', 'possibility') carried by [−cert]. I propose that such modal semantics implies 'future orientation'. The latter term is used by Katz ([2001]) regarding infinitives under modals where the former have a simultaneous or posterior temporal interpretation in relation to the latter. Since [+prosp] also denotes future orientation, the impossibility of [−cert,+prosp] might eventually be explained in terms of preventing redundancy.

Several Bulgarian linguists (Andrejčin 1944; Janakiev 1962; Genadieva-Mutafčieva 1962, 1972, 1976; Popov 1963a; Stojanov 1977) have noted that *∂a* generally carries a modal meaning.[13] If so, the data mentioned can be explained by assuming that both *∂a* and *ще* are modal particles but that they differ as regards the specific mood that they express. Hence, only one of them can be used in the course of VCF, since in syntax, only one modal feature will be able to be checked against Mod. I assume a complex V for *∂a*-expressions as in (19):

(19)

$$[_V \text{ да работя }]$$

$$[_{Mod} \text{ да }] \qquad\qquad [_V \text{ работя }]$$
$$[-\text{cert},-\text{prosp}] \qquad \left\{\begin{array}{c}-\text{past},-\text{aor}\\+1\text{ps},-2\text{ps}\\-\text{pl}\end{array}\right\}$$

I have assigned *∂a* the syntactic feature combination [−cert,−prosp]. Above, I stated that this roughly corresponds with the traditional 'conjunctive/subjunctive' verbal mood. It may be paraphrased as the subject referent's uncertainty as to the reality of the denoted proposition. I suppose that the diverse descriptions in literature concerning the semantics of *∂a* ('hypothetical', 'presumptive', 'optative', 'non-factive', 'intensional', 'probable', 'conjunctive/subjunctive' etc.) can more or less be subsumed under this general notion.[14] According to the structure in (19),[15] I give the content of V in (20):

(20)   V: $\left\{\begin{array}{ll}\text{SF:} & [e\ \text{INST}\ [x\ \text{WORK}]]\\\text{MOD:} & [-\text{cert},-\text{prosp}]\\\text{T/Agr:} & [-\text{past},-\text{aor},+1\text{ps},-2\text{ps},-\text{pl}]\end{array}\right\}$

To sum up my assumptions concerning Mod, I give its possible specifications plus the corresponding morphosyntactic realizations in Bulgarian in (21):

---

[13]In Bulgarian grammar writing, *∂a* has either been classified as a particle (e.g., Gołąb 1964; Schick 1970, 1972; Rudin 1986; Dippong 1996; Werkmann 2003), or as a complementizer (e.g., Scatton 1984; Pašov 1994; Hauge 1999). Lempp (1981a, 1981b) assumes that it may be of either category.

[14]I refer to the following authors, among others, who have contributed valuable descriptions and accounts concerning mood in general and *∂a*-expressions in particular: Gołąb (1954, 1964), Petkov (1962), Stankov (1967), Minčeva (1968), Kiparsky and Kiparsky (1970), Ivić (1970), Schick (1970, 1972), Lempp (1980, 1981a, 1981b), Rudin (1986), Kramer (1985, 1986, 1992), Dippong (1996), Krapova (1997, 1998, 2001), Hauge (1999), Kagan (2007a, 2007b, 2010), Siegel (2009).

[15]Probably the example (19) can be captured by the semantic characterization shown in (i):

(i)   /da rabot/;   [+V,−N,+Fin,+Mod]; $\lambda x\ \lambda e\ [\text{IRREAL}\ [e\ \text{INST}\ [x\ \text{WORK}]]]$

According to this characterization, the occurrence of *∂a* corresponds to the presence of a semantic modal component IRREAL carrying the semantics of irreality (and hence, uncertainty as assumed above). Following the present theory, the latter is added in the course of VCF (this seems to hold for Bulgarian, while it may be added truly syntactically in other languages). The element connected with the IRREAL-semantics also adds a categorial feature [+Mod], marking the resulting verbal form as being a finite modalized verb. Interestingly, Junghanns and Lenertová (2010) assume a 'silent' modal component in sentences with perceptual infinitives (which they analyze as predicatives). They are, however, rather vague about the precise location of this element in syntax. The present analysis indicates that it is indeed connected to the syntactic level of ModP.

(21) Mod: a. [+cert,−prosp]   /Ø/   ('indicative' mood)
            b. [+cert,+prosp]   /ще/   ('prospective indicative' mood)
            c. [−cert,−prosp]   /∂a/   ('conjunctive/subjunctive' mood)

Apart from these considerations as to Mod, the assumption that both *∂a* and *ще* are verbal mood particles can explain why they can by no means co-occur with each other.[16]

9.1 Embedded *∂a*-expressions

I assume that these assumptions are also capable of capturing a well described phenomenon of Bulgarian grammar, namely that *∂a*-expressions "carry no implication as to the reality of the action or process described by the verb, whereas *че*-clauses describe the action or process as factual" (Hauge 1999, 228).[17] Cf. the data in (22) and (23):

(22) a. Щастието   е   [*∂a* те   обичат   твоите   приятели].
          happiness.def be.3sg   da   you.acc love.3pl your.def friends
          'Happiness is to be loved by one's friends.'

      b. Щастието   е,   [*че* те   обичат   твоите   приятели].
          happiness.def be.3sg   that you.acc love.3pl your.def friends
          'It is a lucky thing that your friends love you.'   (Hauge 1999, 228)

(23) a. Не   съм   чул   [*∂a* има   война].
          neg   be.1sg   hear.lpt da   there-is war
          'I did not hear a war to be (there).'

      b. Не   съм   чул,   [*че* има   война].
          neg   be.1sg   hear.lpt that there-is war
          'I did not hear that there is war.'   (Schick 1970, 84)

Significantly, *∂a* is excluded in *че*-sentences, whereas *ще* is perfectly grammatical. Cf. also the examples in (24) and (25):

(24) a. (че) тя *ще* работи   (*ще*-future tense)
      b. (*че) тя *∂a* работи   (*∂a*-present tense)

(25) a. (че) тя *ще* е работила   (future perfect tense)
      b. (*че) тя *∂a* е работила   (*∂a*-present perfect tense)

---

[16]This account also gives a natural explanation for the fact that *∂a* can appear not solely with present tense and perfect tense verbs (as it is the case with *ще*), but also with imperfect tense verbs. Significantly, however, it cannot occur with aorist tense verbs. As stated above, the imperfect tense marks an event ongoing in the past, while aorist marks it to be finished in the past (Busch 1960, 47–86). If it is true that *∂a* is a modal particle associated with 'uncertain' verbal mood, then this does not come as a surprise, since the aorist tense talks about past events as completed facts, while imperfect does not. Hence, the latter can be used by the speaker to talk about past events, whose reality s/he does not have to be certain about. By using the aorist tense, on the other hand, the speaker must be certain that an event did or did not take place indeed, which makes it incompatible with the semantics of *∂a*.

[17]This semantic distinction has been also referred to as 'probability aspect' (Schick 1970), 'non-factivity' (Kiparsky and Kiparsky 1970), 'intensionality' (Kagan 2007a, 2007b, 2010) or 'subject (un)certainty' (Siegel 2009), among others. Cf. also Dippong (1996, 51f.) who speaks about 'non-implication' or 'non-presupposition' as to the propositional content of the sentence part introduced by *∂a*.

I follow Zimmermann (2009, 487) in assuming that *че* is the "unmarked subordinating complementizer" located in C. It marks declarative complement sentences. Unlike Zimmermann, who assumes *че* to be semantically vacuous, I assume that it is *че* which marks the declarative sentence mood of complement sentences. I propose that the latter expresses existential quantification (binding) of the verbal event variable, namely already on SF:

(26) $\lambda P [\exists e [P e]]$

Hence, I identify existential quantification on SF with the syntactic level of CP (see also Späth 2006, 146). When *че* materializes in C, this can be interpreted in such a way that existential quantification of the event variable takes place on SF.

Parallel to T and Mod, I give the general feature matrix for C in (27):[18]

(27)   C: [±C,±wh,±imp]

But why can *ще* appear in *че*-sentences, while *∂a* cannot? According to Kiparsky and Kiparsky (1970), and Kagan (2010), among others, there is a difference between factive ('transparent') and non-factive ('opaque'/'intensional') complement sentences, where the former yield a reality reading of the expressed proposition, whereas the latter do not.[19] I suppose that this interpretational difference is primarily associated with the semantic presence or absence of existential quantification and, hence, with the syntactic presence or absence of a CP layer. While CP is present in *че*-sentences, it is absent in *∂a*-expressions.[20]

Here, the distinction of the two representational levels SF vs. CS in the lines of the Two-level Theory of Meaning is of major relevance: While existential quantification in *че*-sentences takes place already on SF (i.e., it is determined grammatically), this is not the case with *∂a*-expressions. With the latter, the unbound event variable can be identified with an event only on CS, i.e., in accordance with the speaker's world knowledge and/or the situative context. I propose that this can serve as a formal account of why *че*-sentences denote 'facts' (according to the speaker) as opposed to *∂a*-expressions which do not do so necessarily.

From these assumptions it follows that—from a syntactic point of view—*∂a*-expressions are ModPs, whereas *че*-sentences are CPs.

9.2 The interaction of Mod and C

One can now describe the interaction of Mod and C as follows: Embedded C (*че*) can be projected if Mod is specified as [+cert], since a negative specification would be incompatible with existential quantification. Since Mod is set as [+cert], it can additionally be positively specified for prospectivity, which means that *ще* can be present.[21]

---

[18]Again following Zimmermann (2009, 490), I assume that there are no embedded imperative sentences. Consequently, the combination [+C,−wh,+imp] is ruled out.

[19]See also Maienborn (2003, 65) who describes the differences between (German) complements of perception verbs (*dass*- 'that'-sentences vs. infinitival complements) by means of the distinction *perception of facts* vs. *perception of situations*, where the former presupposes some kind of evidence from which the reality of the expressed proposition can be deduced (by the speaker). I suppose that the presence of such evidence can be seen as the extralinguistic prerequisite for Mod to be specified [+cert].

[20]Note that the assumptions of CP-less *∂a*-expressions finds a parallel in Gołąb's (1954, 69–71, 79, 81–82) claim that *∂a*-expressions are connected with the matrix without a complementizer (see also Schick 1970, 189).

[21]I do not claim that the combination [−cert,+prosp] is universally excluded. It is, however, impossible in Bulgarian.

On the other hand, ∂a represents Mod which is [−cert]. It denotes the subject referent's uncertainty as to the proposition expressed. This verbal mood is incompatible with existential quantification on SF—a CP cannot be present. Thus, the undesirable assumption of an empty C can be prevented. Let me exemplify this with some data cited already above:

(28) a. Щастието е, [*че* те обичат вбоите приятели].   (= 22b)
          'It is a lucky thing that your friends love you.'

      b. Щастието е [*∂a* те обичат вбоите приятели].   (= 22a)
          'Happiness is to be loved by one's friends.'

The *че*-sentence in (28a) expresses a proposition which is committed to be true by the speaker (a 'fact') and what s/he is, consequently, certain about. The ∂a-expression in (28b) indicates that the speaker does not assert the proposition; s/he does not commit it to be real ('subject uncertainty'). Essentially, in the case of the *че*-sentence, both the friends and their loving are identified with precise, existing individuals and with one particular event in the actual world. On the other hand, no such identification is present with the ∂a-expression: It is neither said that the mentioned friends really exist, nor that their loving obtains. Instead, this proposition is identified with the set of all conceivable situations which correspond to it, i.e., all conceivable situations of (possible) friends loving the addressee (note that such a set can only be 'compiled' due to the context, world knowledge etc.). Here, the Two-level Theory of Meaning shows its explanatory power: The distinction of SF vs. CS allows to account for both the grammatically and the extra-linguistically determined interpretation of an utterance.

The interaction between Mod and C can be summarized as in (29):

(29) a. C: [+C,−wh,−imp] (*че*) ≈ λP [∃e [P e]] ⟷ Mod:[+cert,± prosp] (∅/*ще*)
      b. absent CP   ≈ λP [λe [P e]] ⟷ Mod:[−cert,−prosp] (*∂a*)

9.3 Unembedded ∂a-expressions

9.3.1 Да-*imperatives*

There are also instances where ∂a occurs in unembedded sentences. Traditionally, these constructions are dubbed as 'analytic imperative' or 'optative' (Hauge 1999, 219), cf. (30):

(30) Да влезем   в   книжарницата!
      da enter.1pl to   bookshop.def
      'Let us go into the bookshop!'   (Hauge 1999, 219)

Under the present assumptions, these sentences cannot be unmarked declarative sentences, since this would imply them to have a CP layer with C specified as [−C,−wh,−imp]. This, in turn, would not be compatible with a Mod specified as [−cert,−prosp]. Following the present line of discussion, however, the latter is the prerequisite for ∂a to appear. Neither can they be analyzed as being true imperative sentences. The lack of any imperative-marked verbal form may serve as evidence for this claim (see also (31) below).

I propose, thus, that these sentences are mere ModPs (which can, hence, also appear unembedded). Their final optative interpretation results from Mod specified as [−cert,−prosp], interacting with the lack of an embedding predicate being able to serve as sufficient context. I assume that on CS, the 'uncertain' mood will be interpreted as the speaker's desire due to world knowledge (obviously, this interpretation is the most unmarked one).

To conclude, optative sentences are not CPs, but ModPs. Grammatically, they merely express 'uncertain' verbal mood. Due to being unembedded, extra-grammatical factors serve as additional input to give them an interpretation. Only by involving both SF and CS, then, it is possible to explain their optative (quasi-imperative) meaning.

However, there are also 'true' imperative sentences in Bulgarian. Noticeably, these do not contain ∂a but verbs morphologically marked for imperative. Zimmermann (2009, 490) assumes that imperative sentences lack both ModP and TP. I propose that this holds, e.g., for such an imperative sentence as the one shown in (31):

(31) Вземайте   по   един   аспирин   три   пъти   дневно   след   ядене.
      take.imp.2pl prep   one   aspirin   three   times   daily   after   eating
      'Take one aspirin three times daily after meals.'   (Hauge 1999, 127)

The verb which is morphologically marked for imperative is itself equipped with an imperative feature. In the course of syntactic derivation, it adjoins to C and checks this feature. Cf. (32), where the featural specification of an 'imperative' C-head is given:

(32) C: [−C,−wh,+imp]

9.3.2 Да-*questions*

Another instance of unembedded ∂a-expressions are interrogative sentences where ∂a indicates that "the speaker fears a positive answer; that a confirmation would be considered an undesirable state" (Hauge 1999, 216). An example is given in (33):

(33) Да   не   си   болен?
      da   neg   be.2sg   ill.sg.m
      'You're not ill, are you?'   (Hauge 1999, 216)

Since this is an interrogative sentence, C is specified [−C,+wh,−imp], both ModP and TP are present in syntax. Due to the context of question, C is free to select a Mod specified as [−cert,−prosp]. Here, I assume that interrogative CPs generally do not imply existential presupposition. I suppose that it is the combination of interrogative sentence mood (C) and 'uncertain' verbal mood (Mod) which is responsible for the final interpretation of this utterance, cf. (34):

(34) a.   C: [−C,+wh,−imp]
      b.   Mod: [−cert,−prosp]

Therefore, I conclude that ∂a can be treated the same way in embedded as well as in unembedded sentences. In all cases, it denotes the lack of 'subject certainty' (Siegel 2009). It can be analyzed as a marker of verbal mood, namely of an 'uncertain' one. Depending on the sentence type, ∂a can induce the interpretations described.

10 Perfect tense

10.1 Present perfect tense

Bulgarian present perfect tense is formed of the present tense auxiliary *съм* 'be' plus an *л*-participle ('participle perfect active'). While the former is marked for person/number as well as for present tense, the latter is marked for number and (in singular) gender, cf. (35):

(35) Иванка   е   работила.   (present perfect tense)
     Ivanka   aux.3sg   work.lpt.sg.f
     'Ivanka has worked.'

Additionally, I assume the *л*-participle to add resultative semantics, which will be represented by means of a perfect feature (+perf) here for sake of simplicity. Since this feature represents an additional semantic notion rather than a tense feature, it is assumed that it is not subject to the checking process.[22]

Since the forms of the present tense auxiliary *съм* are clitics, they are added to the verb (participle) via VCF. They are, thus, another instance of 'pseudo-morphology' in the sense of Bierwisch (1990). I assume the following structure of the corresponding complex V:
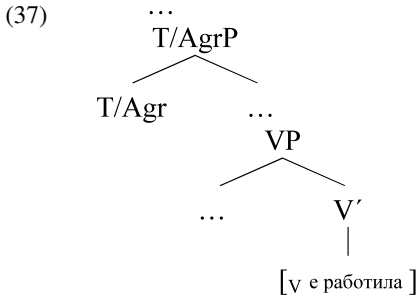
(36)
$$[_V \text{ е работила }]$$
$$\left\{ \begin{array}{c} -\text{past,}-\text{aor} \\ (+\text{perf}) \\ -1\text{ps,}-2\text{ps} \\ -\text{pl} \\ -\text{masc,}+\text{fem} \end{array} \right\}$$

$$[_V \text{ е }] \qquad\qquad [_{V/N} \text{ работила }]$$
$$\left\{ \begin{array}{c} -\text{past,}-\text{aor} \\ -1\text{ps,}-2\text{ps} \end{array} \right\} \qquad \left\{ \begin{array}{c} (+\text{perf}) \\ -\text{pl} \\ -\text{masc,}+\text{fem} \end{array} \right\}$$

The *л*-participle is a non-finite form derived in the lexicon where the suffix {л} (as well as the number/gender suffix) is combined with the verbal stem. I propose that {л} adds the perfect tense semantics, while it does not affect the verbal predicate's AS.[23]

Importantly, since the auxiliary is added via VCF, the tense of the verbal predicate is already specified when it enters syntax. The complex V will, then, check its present tense feature as well as its phi-features against T/Agr, cf. (37):

---

[22]In fact, this can be interpreted in a way that the present perfect tense is actually a resultative present tense, whereas the past perfect tense is a resultative past (aorist/imperfect) tense. Cf. Werkmann (2003, 56f.) who dubs the present perfect tense 'resultative present' and the pluperfect tense 'resultative past'. Indeed, the only true tense feature is the one belonging to the auxiliary, while the participle merely adds the notion of 'resultativeness' (or 'perfectivity').

[23]Junghanns (1996, 134) assumes that the Russian *н/т*-participle is derived by adding the participial morpheme {н/т} to the verbal stem. Since the *н/т*-participle is a 'passive participle', this morpheme is assumed to alter the AS of the di/transitive verbal predicate so that it blocks the external argument from being syntactified. Consequently, the internal argument will surface as the sentence subject (nominative case). Since the *л*-participle is an 'active participle', I conclude that there can be no such AS alternation.
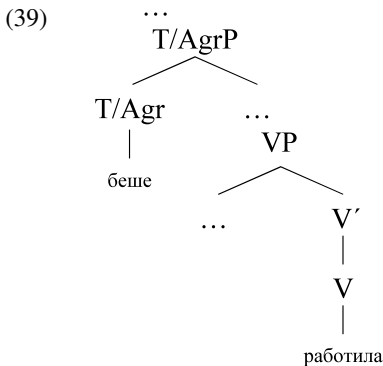
(37)

$$\text{T/AgrP}$$

```
              …
           T/AgrP
          /      \
     T/Agr        …
                  VP
                 /  \
              …      V′
                     |
              [_V е работила ]
```

10.2 Past perfect tense

There is a second variant of how tense may be realized, namely 'exceptionally' through a non-clitic auxiliary which materializes in T/Agr (cf. Junghanns 1996, 133). This is the case with the Bulgarian past perfect (pluperfect) tense where the non-clitic past (aorist/imperfect) tense auxiliary is used, cf. (38):

(38)   Иванка   беше   работила.   (past perfect tense)
       Ivanka   aux.imperf.3sg   work.lpt.sg.f
       'Ivanka had worked.'

That tense is realized exceptionally can be equated with the fact that its realization takes place in syntax (and not via VCF as proposed for present perfect tense). Put differently, the past auxiliary 'materializes' in T/Agr as the overt realization of past tense and phi-features. The л-participle remains in situ in any case, cf. (39):

(39)

```
              …
           T/AgrP
          /      \
     T/Agr        …
       |          VP
     беше        /  \
             …      V′
                     |
                     V
                     |
                  работила
```

This analysis accounts for word order phenomena by which present and past perfect tense constructions differ from each other: While with present perfect tense, the clitic auxiliary cannot be separated from the verb (except by object clitics, see Sect. 6), this is absolutely possible with past perfect tense, cf. (40) and (41):

(40)   a.   Иван е прочел *бързо* книгата.   (present perfect tense)
       b.   Иван *бързо* е прочел книгата.
            'Ivan has read the book *fast*.'
       c.   *Иван е *бързо* прочел книгата.   (Werkmann 2003, 78)

(41) a. Ивана беше *бързо* прочела книгата. (past perfect tense)
   'Ivana had read the book *fast*.'

   b. Студентите бяха *всички* прочели книгите.
   'The students had read *all* the books.' (Werkmann 2003, 65)

10.3 Future perfect tense

As a final case of complex tenses in Bulgarian, the future perfect tense (futurum exactum) will be analyzed in the lines of VCF. This will not pose any problems, since future perfect tense is formed by adding the modal particle *ще* (indicating prospective mood) to a given complex present perfect verb, cf. (42):

(42) Иванка ще е работила. (future perfect tense)
   Ivanka šte aux.3sg work.lpt.sg.f
   'Ivanka will have worked.'

The structure resulting from VCF is, thus, simply a combination of the one for the *ще*-future and the one for present perfect tense, cf. (43):

(43)
$$[_V \text{ще е работила }]$$

$$[_{Mod} \text{ще }] \qquad [_V \text{е работила }]$$
$$[+cert,+prosp] \qquad \left\{ \begin{array}{c} -past,-aor \\ (+perf) \\ -1ps,-2ps \\ -pl \\ -masc,+fem \end{array} \right\}$$

By this, the future perfect tense is a present perfect form which is projected into a moment in the future, whereby the latter fact is marked by the presence of the mood marker *ще*.

   Significantly, and parallel to the situation described for the *ще*-future, it is possible for ∂a to take the place of *ще*. If so, an 'uncertain' (embedded) present perfect tense will arise, cf. (44):

(44) Иванка да е работила ('uncertain' present perfect tense)
   Ivanka da aux.3sg work.lpt.sg.f
   '(that) Ivanka has/had worked'

11 Lexical characteristics of matrix predicates

This final section is dedicated to the predicates which embed *че*-sentences and/or ∂a-expressions. I will give a formal account for the fact why some matrix verbs select only ∂a-expressions, while others embed only *че*-sentences, and a third group can select either ∂a-expressions or *че*-sentences. With Kiparsky and Kiparsky (1970), I will refer to the former group as 'non-factive predicates', to the latter as 'factive predicates', and to the third one as 'neutral predicates':

(45) a. factive predicates: only *че*-sentences
     b. neutral predicates: *че*-sentences / *∂a*-expressions
     c. non-factive predicates: only *∂a*-expressions

A typical example of a factive predicate is *зная* 'know', cf. (46):

(46) a. Петър знае, *че* Иванка (ще) работи.
        'Peter knows that Ivanka (will) work(s).'
     b. *Петър знае Иванка *да* работи.

I assume the following simplified lexical entry for *зная* (only AS and SF):

(47) λp λx λe [e INST [x KNOW p]]

From an intuitive point of view, the fact that *зная* embeds only *че*-sentences is due
to its semantics, since something one knows must also be committed to be real (oth-
erwise it would be merely a belief or an assumption). Formally, I try to capture
this by assigning the lambda-bound internal propositional argument with a morpho-
syntactic 'address' restricting the realization of this propositional argument to *че*-sentences,
cf. (48):

(48) λp λx λe [e INST [x KNOW p]]
      [če]

The complement must be a CP (headed by *че* in C). Since *че* marks embedded declarative
sentences, the event variable of the embedded verb will be existentially quantified already
on the representational level of SF (existential commitment).
    An example for a non-factive predicate is *искам* 'want', cf. (49):

(49) a. Петър иска Иванка *да* работи.
        'Peter wants Ivanka to work.'
     b. *Петър иска, *че* Иванка (ще) работи.

Unlike with *зная*, the propositional complements of *искам* are restricted to *∂a*-expressions.
I assume that *искам* has a lexical entry in the lines of (50), where the internal argument
variable *p* is assigned a corresponding morpho-syntactic address, restricting it to being
realized as a *∂a*-expression, and, hence, as a ModP:

(50) λp λx λe [e INST [x INTEND p]]   (cf. Bierwisch 1990, 188)
      [da]

Embedded propositions can, thus, be either CPs or ModPs. With factive matrix predicates,
the propositional complement is restricted to being a CP (*че*) implying existential quan-
tification already on SF. With non-factive predicates, they are restricted to be ModPs (*∂a*);
hence, there will be no existential quantification. As to neutral matrix predicates, I assume
them not to be restricted at all, cf. the example in (51):

(51) a. Петър предполага Иванка *да* работи.
        'Peter assumes Ivanka to work.'

b. Петър предполага, *че* Иванка (ще) работи.
'Peter assumes that Ivanka (will) work(s).'

I conclude that there cannot be any morpho-syntactic address at all with neutral predicates; cf. the lexical entry for *предполагам* 'assume' in (52):

(52) λp λx λe [e INST [x ASSUME p]]

To summarize, the three mentioned groups of matrix predicates can be characterized in a general way as shown in (53a–c):

(53) a. factive predicates
λp λe [e INST [. . .]]
[če]
b. neutral predicates
λp λe [e INST [. . .]]
c. non-factive predicates
λp λe [e INST [. . .]]
[da]

Thus, the differing selectional behaviour of matrix predicates has been given a formal account in the lines of lexicalism, relating it to differences in the latter's argument structure.

12 Summary

In the present paper, I have developed a theory of Bulgarian sentence structure, specifically regarding the formation of verb complexes, primarily relying on minimalist assumptions, lexicalism and Bierwisch's (1990) theory of VCF. Also, the Two-level Theory of Meaning, allowing to distinguish grammatically from extra-linguistically determined semantics, has been shown to be able to explain several interpretational facts observable in the context of Bulgarian *че*-sentences and *∂a*-expressions.

I have accounted for simple and periphrastic tenses in Bulgarian from the perspective of VCF. It has been shown that both *ще* and *∂a* are modal particles marking specific types of verbal mood, whereas the overt complementizer *че* indicates existential quantification of the predicate's event variable already on the representational level of SF (which is equitable with existential commitment). *Да*-expressions are analyzed as ModPs, lacking both a CP layer and, as a consequence, also existential quantification on SF. The latter takes place only on CS, i.e., due to extra-grammatical factors (no inherent existential commitment).

I hope to have shown that, by using *∂a*-expressions, the speaker does not identify the denoted proposition with a particular event in the actual world, but rather with a set of conceivable situations corresponding to such an event. This set, in turn, is compiled with reference to the speaker's world knowledge and the situative context, i.e. extra-grammatical factors associated with the representational level of CS. It shows that *∂a*-expressions can be indeed characterized as non-factive propositional complement sentences.

Additionally, a lexical account has been proposed for the fact that some matrix predicates select solely *∂a*-expressions, while others select only *че*-sentences and a third group selects either one or the other.

In this paper, I could not address such *∂a*-expressions selected by modal expressions (verbs and predicatives) or by aspectual verbs. Neither was it possible to treat apparently

biclausal complex tenses including the quasi-auxiliaries *щях* and *няма*. Apart from that, the present theory will have to be shown to function also for adverbial *∂a*-expressions headed by (overt or covert) prepositions as, e.g., *за* 'for', *без* 'without', *преди* 'before' etc. At least all these occurrences must be left for future research to be integrated into the broader picture.

Possibly (and naturally implying appropriate adjustments), the present account can be extended not only to other Balkan languages (e.g., Modern Greek with its *na*-constructions), but also to further (Slavic and non-Slavic) languages exhibiting apparently similar modal items, e.g., 'infinitival' *to* in English or *zu* in German.[24]

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[24]With respect to German infinitival *zu*, Vogel (2009) proposes it to be merely a morphological 'index', marking a whole phrase to have some morphological property. I suppose that this way of analysis can be compared to the present one keeping in mind that Bierwisch (1990) talks about 'pseudo-morphological' items added to the verb via VCF. Thus, while their concrete status has to be determined for each item separately, both Bierwisch and Vogel indicate that there are items added to the structure in (at least) a non-syntactic way.

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