How to teach compositional aspect on verbal-aspect languages data: biaspectuality in Bulgarian and Greek

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ABSTRACT

Compositional aspect (CA) is a well-known phenomenon in general linguistics but its essence is, on the one hand, misconceptualized and, on the other, absent in all major grammars of CA-languages, including English. This paper deals with CA as found peripherally in Bulgarian and Greek, two languages that have verbal aspect (VA) and are also hybrid ones, featuring a regular aspect system in verbs as lexical entries and a definite article (no indefinite). The definite-indefinite-zero article pattern plays a major role for effectuating aspect in CA-languages such as English but the definite article in hybrid languages like Bulgarian and Greek also plays such a role in certain specific semantico-syntactic conditions. The regularity is demonstrated here mainly on the basis of a specific type of sentences – with biaspectual verbs and three situation-participant NPs. As CA exists in VA-languages too, albeit peripherally, the thesis here is that it needs to be covered in larger Bulgarian and Greek grammars (academic, comprehensive) and taught at higher levels of learners' language knowledge or acquisition – to students seeking language proficiency, to future language teachers, translators/interpreters, other applied and theoretical linguists. The analysis and the conclusions in the paper could also lead the way to solving certain important theoretical issues: how must CA in VA-languages without articles be analyzed? Exactly how must CA be incorporated in grammars and textbooks and taught? Grammars of VA-languages without articles such as the Slavic ones, Georgian, etc. ought to contain chapters describing the major systems involved in the aspect mechanism: the aspectual and the aspecto-temporal system, the nominal determination system, etc. Especially in need of better explanation and understanding are the way definiteness and indefiniteness, genericity, specificity and similar values are effectuated in languages with no articles – something that has been attempted many times in linguistics but never received a convincing description.

Key words: *compositional and verbal aspect, perfectivity and imperfectivity, biaspectuality, definite/indefinite/zero article, Bulgarian and Greek grammar*

1. Introduction

In the history of linguistics it has repeatedly been maintained that there is something across languages around the world called aspect, that it is located in verbs and that its function is to

distinguish between perfective and imperfective situations. This paper will show that this is not a very good description, although, indeed, VA, i.e., the presence in a language of perfective and imperfective verbs, exercises the function of contrasting perfectivity and imperfectivity. Actually, it stands to reason to refute the statement above. Why? Because if aspect in verbs in some languages serves to contrast perfectivity and imperfectivity, it begs the question what exactly happens in those languages in which there are no perfective and imperfective verbs. Are these languages fully incapable of contrasting perfectivity and imperfectivity? This paper is to provide a better answer to the question.

1.1. What is aspect?

Aspect is the effectuation in and across languages of the perfective-imperfective distinction, whereby perfectivity is a temporally bounded Vendlerian situation (Vendler, 1957) with an initial point and an end-point. Apart from that, perfectivity is a situation brought to a natural end, and the natural end is interpreted in broad and very different pragmatic terms, as an inherent result of the situation on the arrival at the end-point. Imperfectivity, conversely, is a temporally non-bounded situation, whether or not an initial and/or an end-point are present or subsumed in it (on perfectivity vs imperfectivity, see Kabakčiev, 2019, 202).

1.2. Verbal vis-à-vis compositional aspect

Until the 1970s it was widely accepted in linguistics that aspect is a grammatical category found almost exclusively in the Slavic languages, where it is realized by verbs as lexical entries. However, in 1971 a universal language phenomenon was discovered on Dutch and English data by Henk Verkuyl, a Dutch linguist and logician (Verkuyl, 1972). It was later called CA – by other researchers. The finder of CA continued to work on the phenomenon, and in Verkuyl (1993) he explained it even more precisely, in terms of two aspectual schemata, a perfective and an imperfective one, observed in languages that do not feature VA. Verkuyl's epochal discovery of CA enabled generalizations to be developed and sophisticated later, in numerous aspectological publications by other researchers, culminating into an understanding that aspect is a *universal feature found across all natural languages*, albeit in various disguises.

The phenomenon of CA is primarily found in languages prototypically featuring CA (i.e., CA-languages), such as English, Dutch, Finnish, Albanian – among European ones. Conversely, VA-languages feature perfective aspect in verbs, usually as lexical entries – as, e.g., in the Slavic languages, whereby perfectivity is a bounded situation with an achieved telos

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(an accomplishment or an achievement in Vendler's 1957 classification) and imperfectivity is a non-bounded situation (Vendlerian state or activity).

Perfectivity in both Verkuyl's theoretical model and in the theoretical framework adopted here is marked by the simultaneous presence of so-called plus-values in both verb and NPs in the sentence/clause, whereby +ADD-TO is a feature in the verb (also called telic), and +SQA ("specified quantity of A", also termed quantified or bounded) is a feature of NPs. Imperfectivity is marked by the presence of at least one so-called (by Verkuyl) leak: either a -ADD-TO (atelic) feature in the verb or a -SQA (non-quantified/non-bounded quantity of A) feature in at least one NP; for detail concerning the two schemata, see Verkuyl (1993; 2022). As an illustration of the two schemata on English material, consider the sentences (1) below. The first one contains no leak/leaks and perfectivity is explicated. The other three contain at least one leak, and imperfectivity is explicated:

(1)   a.   The tourist visited the pub [perfective, no leak]

b. The tourist visited pubs_LEAK [imperfective, leak in *pubs*]

c. Tourists_LEAK visited pubs_LEAK [imperfective, two leaks, in *tourists* and *pubs*]

d. The tourist hated_LEAK this pub [imperfective, leak in *hated*]

Thus, in Verkuyl's aspectual schemata, valid for CA-languages, the perfective aspect is marked through the simultaneous presence of so-called plus-values in both the verb and the NPs in the sentence, viz., +ADD-TO in the verb and +SQA in NPs. The value +SQA, boundedness, is encoded in NPs through quantifiers – among them articles, other determiners, demonstrative adjectives or pronouns, possessive adjectives, personal pronouns, etc. It is especially noteworthy that -SQA, non-boundedness, is encoded in the language system by a single marker, the so-called zero article, i.e., lack of an article (*a* or *the*). "Zero article" actually means lack of a quantifier and it thus approximates the meaning of the term "bare NP". Imperfective aspect is encoded through the presence in a sentence/clause of at least one leak: either a -ADD-TO feature in the verb or a -SQA feature in at least one NP. As an illustration of Verkuyl's schemata, while sentence (1a) above has no leak(s) and perfectivity is explicated, each of the other three sentences (1b,c,d) contains at least one leak and imperfectivity is explicated.

All this boils down to a crystal-clear interplay between sentence components. Unfortunately, there are differences between the interpretations of this interplay among the different aspectologists. Verkuyl (2022) calls the interaction between verb and NP referents at the sentence level "feature algebra". Kabakčiev (1984; 2000; 2019), Dimitrova and Kabakčiev (2021) interpret the interaction between verb and NP referents as an interplay between temporal

entities. A similar position – of NP referents viewed as temporal entities, is maintained by Vounchev (2007, 86–87) in his analysis of Greek and Bulgarian aspectological data. Bulatović (2020, 405) subscribes to a similar understanding, recognizing as an interplay "the role of different verbal and nominal groups in signalling perfectivity or imperfectivity" – though for Bulatović this is not necessarily an interplay between temporal entities.

A truly absurd and lamentable state of affairs is observed today in all academic and comprehensive grammars of English, along with the grammars of all other CA-languages. It consists in the total absence of any kind of explanation what CA is, how it is realized through the article-aspect interplay, etc., despite the fact that CA was discovered in linguistics more than five decades ago (Verkuyl, 1972) and recognized as an extremely important phenomenon, and then described much more fully in the following years and decades in hundreds of aspectological publications. In another paper on CA, Bulatović heaps harsh – but otherwise fully convincing and justified – criticism on all English grammars and the system of English language teaching worldwide: "[CA] *is not described in grammars of English, not mentioned in English coursebooks, and not taught in schools and colleges*" (Bulatović, 2022, 500-501). Furthermore, Bulatović (2022, 503) maintains a thesis similar to the one upheld here, viz., that "it is the [±boundedness] role of articles that is primary, and their [±definiteness] role is secondary".

2. Problem statement

As already pointed out above, aspect in CA-languages is realized as a very complex interplay of grammatical, semantic and other values (pragmatic) within sentence components: the verb, NPs. Adverbials must also be added here, but this issue will be skipped, for lack of space. In this interplay the article performs an extremely significant role with its omnipresence. This role can be seen in the sentences above and will also be shown and explained further below. Conversely, in VA-languages, such as almost all the Slavic ones, Georgian, etc., having no articles (no definite article and no indefinite article), aspect (perfectivity and imperfectivity) is directly realized by the verb. In the huge majority of cases, verbs in these languages, being either perfective or imperfective as lexical entries, directly encode (denote, signify, mark, express) perfectivity or imperfectivity – by themselves. But there is also a third group of verbs in these languages – biaspectual ones (sometimes called anaspectual). They are ambivalent between perfectivity and imperfectivity and can explicate either value through the compositional mechanism, see below.

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Thus, when analyzing languages which feature both VA and a definite article, such as Bulgarian and Greek, it begs the question exactly what role is performed by the definite article and exactly how it interferes with the explication of aspect in those cases when aspect is not directly encoded by the verb in a sentence/clause. Different types of cases are observed when aspect is not directly encoded, but in this paper the investigation will be on the employment of biaspectual verbs – in Bulgarian and Greek.

3. Purpose of the study

CA also exists in VA-languages, but peripherally – something to be further explained below on Bulgarian and Greek data. Bulgarian was first reported as a VA-language (Slavic) featuring CA by Kabakčiev (1984, 649), see examples of CA explication in Bulgarian in sentences like (2) below. Structurally these sentences correspond to the English examples (1) above, containing one and the same biaspectual verb associated with two situation-participant NPs. Aspect is realized not through the verb (because it is aspectually ambivalent) but as a complex interplay between the features of the referents of the relevant situation-participant NPs and the verb – that is, in compositional terms:

(2)   a.   Tehnitsite remontiraha$_{BiASP}$ peralnyata [no leak, prototypically perfective]

            'The technicians repaired the washing machine'

    b.   Tehnitsite remontiraha$_{BiASP}$ peralni$_{LEAK}$ [one leak, imperfective]

            'The technicians repaired washing machines'

    c.   Tehnitsi$_{LEAK}$ remontiraha$_{BiASP}$ peralni$_{LEAK}$ [two leaks, imperfective]

            'Technicians repaired washing machines'

A sentence such as (2a) is prototypically perfective because it has no leak and the referents of the NPs *tehnitsite* 'the technicians' and *peralnyata* 'the washing machine' are bounded (see again the description of Verkuyl's perfective schema above). Conversely, (2b) and (2c) are prototypically imperfective sentences because of the presence of a leak/leaks in NP/NPs. In simpler everyday terms, the first sentence describes a one-off situation, a single act, in which a bounded group of technicians repair successfully a washing machine, and the situation is perfective. This is a bounded situation with a reached telos – the washing machine is functional again; in Vendler's classification this is called an accomplishment. In (2b) and (2c) either the referent of the syntactic object *peralni* 'washing machines' or the referents of both subject and object undergo a change vis-à-vis (2a): from boundedness, an accomplishment, a single act, to non-boundedness – indefinite iterativity, of the relevant entity (NP-encoded). And it fully stands

to reason that if the referent of a syntactic subject or object is an indefinitely iterative (recurring) entity, the verb referent itself will be an indefinitely iterative entity, recurring. Or, in other words, roughly phrased, sentences such as (2b) and (2c) are imperfective.

Note that the compositional explication of aspect is also clearly seen in the English translations of the sentences in (2). For further detail on Verkuyl's two schemata, see Verkuyl (1972; 1993; 2022). Greek sentences with biaspectual verbs demonstrating the compositional explication of aspect will also be given and explained – below.

4. Research method

The main method followed in this paper is an approach described in Dimitrova (2021). It is not the inductive one typical of mainstream grammatical descriptions of languages but is deductive: initially defining broad universal language notions and then seeking the realization of these universal notions in different languages.

Mainstream linguistic analyses and standard grammatical descriptions in most cases proceed in a rather different manner. In the case of verbal aspect, it is taken for granted that there are certain languages (for example, the Slavic ones) that demonstrate verbal aspect through their verb lexicons. It is common knowledge that in most cases a perfective verb in these languages will contain a perfectivizing prefix and will be contrasted to a simple imperfective verb, without a prefix. Of course, there exist other formal ways in the Slavic languages for contrasting perfective and imperfective verbs, but these will be ignored here, for lack of space. In the traditional inductive approach, a particular language is chosen as the object of investigation of an already observed phenomenon, for example, perfectivity. Observations are then made as to what formal devices are present in this language that encode the previously identified grammatical category (e.g., aspect) or grammeme (e.g., perfectivity): morphological, periphrastic, semantico-syntactic, etc. These devices are then formally described, classified and inventorized, and generalizations and conclusions are made as to the patterns and paradigms formed by these structural devices in the relevant language (or languages).

This is not a wrong approach, of course. The features of aspect-related language components *must* be described in formal and semantic terms. But this approach is one-sided and dramatically misses the opportunity to find out what it is that makes natural languages develop (in diachrony) or maintain (in synchrony) aspect – or other grammatical categories for that matter. Traditional mainstream linguistic analyses and standard grammatical descriptions, instead of trying to formulate questions about the reasons for the existence of verbal aspect –

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as in the Slavic languages or Georgian, as well as the reasons for the non-existence of verbal aspect in other languages, exclusively concern themselves with the devices as described above and their formal features (e.g., prefixes, infixes, suffixes) for the effectuation of aspect in VA-languages. Some extremely important questions that are never (or almost never) asked in traditional linguistic analyses are, for example, the following: (i) why do many languages have articles (definite, indefinite, zero) but many other languages do not have articles? (ii) why do native speakers of languages without articles *not suffer* from the lack of articles? (iii) why do many languages have perfect verb forms (*have* or *be* auxiliary plus a past participle)?; (iv) why do native speakers of languages without perfect verb forms *not suffer* at all from their absence?

The deductive approach dramatically overcomes the insufficiencies of the inductive approach – related to the isolated nature of the observations made on formal grammatical devices. For example: many observations on aspect in Bulgarian do not hold for observations made on Serbian or Russian – that are otherwise Slavic languages too. The deductive approach, conversely, concerns itself with the formulation of broad concepts related to language and language structure in general, which allows making predictions and conclusions for huge numbers of languages, even for all languages. To give an example in this vein, let us have the concept of perfectivity properly formulated. It is a bounded situation (Vendlerian) on the time axis – with a reached telos, whereby the reached telos is described in general terms related to human knowledge – that is, in pragmatic terms, not semantic ones. After the formulation of perfectivity in this way, it becomes easier to find its realization – not in one or two languages but in many or even all around the world.

Inter alia, although Verkuyl did not announce the use of a deductive approach, he actually used one to make the epochal discovery of CA. What Verkuyl did was the formulation of a broad concept of the distinction between perfectivity and imperfectivity. He then asked himself the question: what is it in languages such as the Germanic ones that ultimately effectuates perfectivity and imperfectivity? Or, phrased otherwise, what are the formal or other (lexico-semantic, semantico-syntactic, semantic, grammatical, etc.) means in languages such as Dutch and English that underlie the explication/signalling of perfectivity and imperfectivity? As already shown in the analysis of sentences like (1) above, there *are* such devices in languages like Dutch and English (i.e., in CA-languages), and it is clear that these devices constitute a system that is mind-boggling in its complexity, involving various lexico-semantic, semantico-syntactic, semantic, grammatical and other elements.

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Another important aspect of the more specific approach, a deductive one, adopted in this work, is that in the analysis of the language data that matches the criteria of the universal notions initially constructed, analyzed and counterposed one to another are grammatical vs non-grammatical sentences, as per Chomsky's theoretical framework. This provides the opportunity for the features of the grammatical sentences to be described much more fully and correctly.

5. Language data analysis – in cases of biaspectuality

The analysis of the regularities of the phenomenon of aspect across languages, and of biaspectuality in particular, will be made primarily on data from Modern Bulgarian and Modern Greek, using English as a metalanguage, but some necessary comparisons with VA-languages will also be made.

5.1. Analyses of biaspectuality on Bulgarian data

As shown elsewhere, Kabakčiev (2020, 119-120), the regularity demonstrated in (1) above with biaspectual verbs can be observed in many other Bulgarian sentences. See (3a-d) below, containing not one or two situation-participant NPs but three – if the NP in the prepositional phrase *ot blizkata reka* 'from the nearby river' is reinterpreted as a situation-participant NP (which is possible). In other words, the phenomenon of CA can easily be seen to exist not only in English, a CA-language, but also – very clearly, albeit peripherally – in VA-languages, in this case Bulgarian:

(3)   a. Dvama planinari konvoiraha$_{BiASP}$ konya da pie ot blizkata reka [no leak, prototypically perfective]

'Two mountaineers convoyed the horse to drink from the nearby river'

b. Planinari$_{LEAK}$ konvoiraha$_{BiASP}$ konya da pie ot blizkata reka [one leak, imperfective]
'Mountaineers convoyed the horse to drink from the nearby river'

c. Dvama planinari konvoiraha$_{BiASP}$ kone$_{LEAK}$ da piyat ot blizkata reka [one leak, imperfective]

'Two mountaineers convoyed horses to drink from the nearby river'

d. Dvama planinari konvoiraha$_{BiASP}$ konya da pie ot blizki reki$_{LEAK}$ [one leak, imperfective]

'Two mountaineers convoyed the horse to drink from nearby rivers'

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The first sentence (3a) is prototypically perfective for the following reasons. It contains a biaspectual verb ambivalent between perfectivity and imperfectivity and three quantified (bounded) NPs, and thus it belongs to Verkuyl's perfective schema; the situation is understood as perfective, a Vendlerian accomplishment. Sentences (3c) and (3d) are imperfective, understood as implicating indefinite iterativity, non-boundedness, and hence imperfectivity, for the following reasons. First, *kone* 'horses' in (3c) explicates a non-bounded series of horses on the time axis with no known beginning and no known end, taken by two mountaineers to drink water from the nearby river. If a non-bounded series of horses – with no definite beginning and no definite end on the time axis, is taken to drink water from somewhere, then the situation itself, mainly contained in the meaning of the verb, is non-bounded or, in other words, imperfective. Second, in (3d), similarly, if a horse is taken by two mountaineers to nearby rivers, and these rivers form a series on the time axis with no definite beginning and no definite end, then, again, the situation itself, synthesized in the meaning of the verb, is non-bounded, imperfective.

Note, however, that sentences of this kind, with three situation-participant NPs and a biaspectual verb, are, first, difficult to find in real-world texts and, second, not easy to construct so as to reveal the aspectual regularity. And, third, some or most of them are susceptible to various pragmatic interpretations that may change the aspectual readings. Thus, for example, (3b) could in certain cases be read not as imperfective but as perfective, with a "silent" quantifier *some* (Bulgarian *edni* 'some') in the subject *planinari* 'mountaineers'. Of course, the prototypical, primary interpretation of sentence (3b) is the imperfective one – and this aspectual meaning is realized when the referent of *planinari* 'mountaineers' is understood as a non-bounded temporal entity, a series of mountaineers on the time axis one after the other, with no definite beginning and no definite end, bringing the horse to water. The indefinite iterativity (recurrence) of the referent of *planinari* 'mountaineers' is mapped onto the referent of the biaspectual verb *konvoiraha* 'convoyed' and the verb is understood as explicating imperfectivity.

Despite being rare in real-world texts and difficult to construct, these sentences are extremely important in grammatical terms, because they point to a language feature which is clearly universal: aspect is as much an attribute of the verb in a sentence (the attribute being either grammaticalized or only explicated) as "an all-pervading and perpetual process of mapping temporal features between elements of the sentence, especially between referents of verbs and of nominals that are participants in situations" (Kabakčiev, 2019, 212).

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Sentences with biaspectual verbs and two or three situation-participant NPs – like (3), exist in Greek as well but in certain more specific conditions (Dimitrova and Kabakčiev, 2021); Greek sentences of this type will be discussed below. Biaspectual verbs *are* allowed in Greek in, for example, infinitival constructions and future-tense verb forms. But, unlike in Bulgarian, they are *not* allowed in past tense verb forms, because Greek preterits (aorists and imperfects) obligatorily receive aspectual marking: aorists are always perfective, imperfects always imperfective. In Bulgarian this is not the case. Perfective and imperfective verbs in Bulgarian freely combine separately with aorist and imperfect verb forms.

For the sake of the discussion here, two English sentences with three situation-participant NPs will now be constructed to demonstrate the two opposite ends of a perfective-imperfective continuum in Bulgarian – from imperfectivity to perfectivity, see the examples in (5) further below. The two English sentences (4a) and (4b) here have the same verb form *will sponsor*: unmarked for aspect and ambivalent between perfectivity and imperfectivity outside of a sentence or context. The first sentence has no Verkuylian leak and hence explicates perfectivity – (4a). The second one, (4b), has leaks in all the NPs and explicates imperfectivity:

(4)   a.   The businessman will sponsor$_{BIASP}$ the concert of the young virtuoso [no leak, prototypically perfective]

        b.   Businessmen$_{LEAK}$ will sponsor$_{BIASP}$ concerts$_{LEAK}$ of young virtuosi$_{LEAK}$ [three leaks, imperfective]

In the first case, (4a), the referents of the three situation-participant NPs constitute temporally bounded entities. There is one agent, a kinetic entity appearing once on the time axis to perform the task of sponsoring the young virtuoso for one concert, i.e., for one complete event, perfective, on the time axis. The second case, (4b), demonstrates something completely different: a non-bounded (unknown, unspecified) number of businessmen located one after the other on the time axis are to sponsor a non-bounded number of concerts (i.e., events on the time axis), performed by a non-bounded number of young virtuosi. Note that the virtuosi are also located on the time axis one after the other – and are not located together simultaneously in the same physical place.

After the example of these two basic English sentences (4a, b), let us now construct a larger set of Bulgarian sentences, (5), but this time in the past tense, which is possible in Bulgarian – though not in Greek. The Bulgarian sentences (5) demonstrate even much more clearly and exhaustively aspect as an interplay at the sentence level between the referent of the verb and the referents of situation-participant NPs. They also show the extremely important and

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interesting transition from imperfectivity in sentences with one or two or three Verkuylian leaks (i.e., NPs unaccompanied by an article or some other quantifier) to perfectivity in the last sentence – (5f), with no leak in any of the three NPs:

(5)   a. Biznesmeni$_{LEAK}$ sponsoriraha$_{BiASP}$ kontserti$_{LEAK}$ na mladi virtuozi$_{LEAK}$ [three leaks, imperfective]

'Businessmen sponsored concerts of young virtuosi'

b. Biznesmeni$_{LEAK}$ sponsoriraha$_{BiASP}$ kontserti$_{LEAK}$ na mladiya virtuoz [two leaks, imperfective]

'Businessmen sponsored concerts of the young virtuoso'

c. Dvama biznesmeni sponsoriraha$_{BiASP}$ kontserti$_{LEAK}$ na mladi virtuozi$_{LEAK}$ [two leaks, imperfective]

'Two businessmen sponsored concerts of young virtuosi'

d. Dvama biznesmeni sponsoriraha$_{BiASP}$ kontserti$_{LEAK}$ na mladiya virtuoz [one leak, imperfective]

'Two businessmen sponsored concerts of the young virtuoso'

e. Biznesmeni$_{LEAK}$ sponsoriraha$_{BiASP}$ kontsertite na mladiya virtuoz [one leak, imperfective]

'Businessmen sponsored the concerts of the young virtuoso'

f. Dvama biznesmeni sponsoriraha$_{BiASP}$ kontserta na mladiya virtuoz [no leak, perfective]

'Two businessmen sponsored the concert of the young virtuoso'

Note also that in the imperfectivity-perfectivity continuum in this group of sentences, the first sentence features three leaks in the three NPs. The leaks are then reduced to two, and then to one, still triggering imperfectivity. Finally, when no leak occurs, as in (5f), the relevant sentence is perfective.

The analysis of the temporal properties of the NP referents in (5) are identical or at least similar to the analysis of the sentences in (2) and (3) above. In the case of three situation-participant NPs as in (5), the temporal non-boundedness and indefinite iterativity in each of them trigger non-boundedness and indefinite iterativity (non-bounded recurrence) in the verb referent: the biaspectual verb form *sponsoriraha* 'sponsored' is coerced from aspectual ambivalence to imperfectivity. When the number of leaks drops from three to two, as in (5b), the sentence becomes somewhat more susceptible to a perfective reading. The NPs *biznesmeni* 'businessmen' and *kontserti* 'concerts' in (5b) could be interpreted as each containing a silent

quantifier *edni* 'some/several', and in such a case the aspectual interpretation of the sentence would be perfective, despite the bare NPs *biznesmeni* and *kontserti* – i.e., in violation of Verkuyl's imperfective schema. However, such an interpretation would be a secondary one, non-prototypical and fully dependent on the implied presence of a quantifier. In (5e), the likelihood of having a perfective interpretation in the sentence is again higher, because the presence of a silent quantifier *edni* 'some/several' can even more easily be subsumed in such a sentence, containing only one non-bounded NP. Still, again, the perfective interpretation would be a secondary one, non-prototypical and entirely dependent on an implied quantifier.

Finally, within the imperfectivity-perfectivity continuum, sentence (5f) most easily lends itself to a perfective interpretation, because very clearly this sentence is about a one-off act, a completed one, bounded, with an achieved telos, despite the aspectually ambivalent (biaspectual) verb form. This is mainly effectuated by the presence of a definite article, a quantifier, in each of the NPs: *biznesmenat* 'the businessman', *kontserta* 'the concert', *mladiya virtuoz* 'the young virtuoso'. What does the definite article do? It assigns to the referent of the relevant NP the status of a one-off entity, a single kinetic one, temporally bounded, with a definite beginning and a definite end on the time axis. The three referents of situation participant NPs map their temporal boundedness onto the referent of the verb, and the verb starts to be interpreted as explicating perfectivity.

5.2. Some analyses of biaspectuality on other Slavic languages data: Serbian, Russian

Let us consider what will happen if we transfer (translate) two of the Bulgarian sentences in (5), namely (5a) and (5f), into Slavic languages with no article: Serbian, Russian. The Bulgarian sentence (5a) will normally, according to the standard rules of translation, be equal to Serbian (6a) and Russian (6b), respectively:

(5)   a. Biznesmeni$_{LEAK}$ sponsoriraha$_{BiASP}$ kontserti$_{LEAK}$ na mladi virtuozi$_{LEAK}$ [Bulgarian; three leaks, imperfective]

'Businessmen sponsored concerts of young virtuosi'

(6)   a. Biznismeni su sponzorisali$_{BIASP}$ koncerte mladih virtuoza [Serbian]

'Businessmen sponsored concerts of young virtuosi'

b. Biznesmeny sponsirovali$_{BIASP}$ kontserty iunyh virtuozov [Russian]

'Businessmen sponsored concerts of young virtuosi'

Also, the Bulgarian perfective sentence (5f), in which perfectivity is explicated in CA terms, undoubtedly corresponds to Serbian (7a) and Russian (7b), respectively:

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(5)   f. Dvama biznesmeni sponsoriraha$_{BİASP}$ kontserta na mladiya virtuoz [no leak, perfective]

'Two businessmen sponsored the concert of the young virtuoso'

(7)   a. Dva biznismena su sponzorisali $_{BIASP}$ koncert mladog virtuoza

Two businessmen   are sponsored concert of young virtuoso

'Two businessman sponsored a/the concert of a/the young virtuoso'

    b. Dva biznesmena sponsirovali $_{BIASP}$ kontsert yunogo virtuoza

Two businessmen sponsored concert   of young virtuoso

'Two businessmen sponsored a/the concert of a/the young virtuoso'

Note that in both Serbian and Russian the verbs for *sponsor* are truly biaspectual, just like in Bulgarian – and this could imply that aspect in the Serbian and the Russian sentences might be explicated in compositional terms.

Can it? Not really! Hence the absence of notation about leaks in the Serbian and the Russian sentences. Let us first discuss the Serbian and Russian sentences expected to be imperfective. If Bulgarian (5a) can indeed be characterized as imperfective, imperfectivity being explicated in CA terms, can the equivalent Serbian sentence (6a) and the equivalent Russian sentence (6b) be characterized as imperfective too? No, they cannot. Why? Because the Serbian and Russian NPs corresponding to (English) *businessmen*, *concerts* and *young virtuosi* are marked *neither* for non-boundedness, *nor* for boundedness, due to the lack of articles in Serbian and Russian. Thus a question that must immediately spring to mind is: what happened with the definite articles in the equivalent Bulgarian sentence and its English translation? Why did they disappear in the translation into Serbian and Russian? And as it is a fact that they disappeared – and they will always disappear in similar cases – it begs the question: what is it that exercises or must exercise in Serbian and Russian the functions of the definite article present in the relevant sentences in Bulgarian and English? Linguistics today has no convincing answer to this extremely significant question. Future studies will be expected to propose a solution.

And now let us consider the two sentences in (7) corresponding in translation terms to Bulgarian (5f). Bulgarian (5f) is characterized as perfective, perfectivity explicated in CA terms. But can the supposedly semantically equivalent sentences – Serbian (7a) and Russian (7b), be characterized as perfective ones? Not necessarily. Why? Because the lack of quantification in the two Serbian and Russian NPs that stand for *concert* and *young virtuoso* and correspond to the Bulgarian sentence (5f) makes it hard for the hearer to interpret these NPs as quantified. Hence, although perfectivity cannot be ruled out in (7a, b), these sentences cannot

obligatorily be read as temporally bounded, and cannot be interpreted as capable of transferring temporal boundedness onto the referent of the aspectually ambivalent verb.

Now, to return to the very significant question whether CA explication in cases like (6) and (7) in Slavic languages like Serbian or Russian is possible, the answer appears negative. In languages with no articles, sentences with three situation-participant NPs and a verb that is aspectually ambivalent must generally be characterized as *insusceptible or not fully susceptible to CA explication*. This is because the NPs in such sentences – Serbian (6a), (7a) and Russian (6b), (7b) – are not marked for boundedness through articles or other determiners/quantifiers, and are also not marked for non-boundedness through the absence of articles and/or other determiners or quantifiers, respectively. Conversely, in Bulgarian and English they *are* marked so – and also in Greek, see below.

5.3. Analyses of biaspectuality on Greek data

The regularity described above on Bulgarian data can be demonstrated on Greek data too. Articles are absent in almost all Slavic languages but present in the grammatical structures of Bulgarian and Greek, hence an article-aspect interplay can be assumed to play a key role there for aspect effectuation. A recent publication with an analysis of Greek sentences with biaspectual future verb forms and three situation-participant NPs (Dimitrova & Kabakčiev, 2021, 193) shows that this type of sentences is really capable of demonstrating the distinction between quantified and non-quantified NP elements, including the article-aspect interplay, just like in English and Bulgarian. Analyzed in the publication above are four Greek sentences with three situation-participant NPs and an identical biaspectual verb. The first sentence, (8a), with no leak, is perfective. The other sentences, each with a Verkuylian leak, are imperfective:

(8)   a. O valé tha parkárei$_{BIASP}$ to aftokínitó mas ston kontinó chóro státhmefsis [no leak, prototypically perfective]

'The valet will park our car in the parking lot nearby'

b. O valé tha parkárei$_{BIASP}$ aftokínita$_{LEAK}$ ston kontinó chóro státhmefsis [one leak, imperfective]

'The valet will park cars in the parking lot nearby'

c. O valé tha parkárei$_{BIASP}$ to aftokínitó mas se kontinoús chórous státhmefsis$_{LEAK}$ [one leak, imperfective]

'The valet will park our car in nearby parking lots'

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d. Valédes_{LEAK} tha parkároun_{BIASP} to aftokínitó mas ston kontinó chóro státhmefsis [one leak, imperfective]

'Valets will park our car in the nearby parking lot'

The analysis shows that the explication of aspect (perfectivity or imperfectivity) in such Greek sentences with an aspectually ambivalent verb mainly rests on the temporal features of the situation-participant NP referents. In the perfective sentence (8a) there are three situation-participant NPs, each of which represents a single instance in time of the relevant entity: a valet is expected to appear once, the speakers' car is expected to appear once, the parking lot is expected to appear once, and the valet is expected to park the car in the parking lot – once. It is worth noting here that the first linguist to subscribe to the understanding of situation-participant NP referents as temporal entities (Kabakčiev, 1984; 2000) is a Hellenist who analyzed Greek and Bulgarian data, Vounchev (2007, 86–87).

Now consider sentence (8b). The same valet appears to be here again but he is expected not to park the speakers' car once but to park cars – probably many cars, many times. Is this situation similar to the one in (8a)? Not at all! First, this is not a single instance in time of a valet, these are many instances in time of a valet – and, furthermore, these instances are a non-bounded number of appearances of a valet. Furthermore, does *the valet* here refer to the same valet? Not necessarily! It could be the same person but it could also be a designation in the singular of different individuals performing the duty of a valet. Second, in (8b) we do not know where the entity *cars* begins and we do not know where this entity ends. Put otherwise, *cars* here refers to a process of recurrence of cars or a car being driven into a car park, and not to a group of cars as physical objects standing at the same place initially and then driven into a car park together. In aspectology this recurrence of cars is normally described as "indefinite iterativity".

Third, consider *the parking lot* in (8b). Is this a single instance in time of a parking lot as a physical object? No! In contrast to (8a), where *the parking lot* refers to a single instance in time of the physical object "parking lot", here *the parking lot* is a recurrent entity just like the valet is a recurrent image of a/the valet. To sum up, the referents of the three NPs in sentence (8a), which is perfective, are completely different in their temporal configurations from the temporal configurations of the referents of the three NPs in sentence (8b), which is imperfective. It is also important to note that obviously there is mapping of temporal values within the separate sentences. For example, in a simplified picture of the separate mapping processes in the two sentences, while in (8a) there is a single instantiation of time of the entities *the valet*, *our car*

and *the parking lot*, in sentence (8b) the indefinite iterativity (recurrence) feature of *cars* is mapped back onto the referent of the verb *parked* and the verb is thus coerced into signalling imperfectivity – which in this case is non-bounded iterativity (recurrence). But the mapping process does not terminate here. The feature "recurrence" of *cars* and of *parked* is mapped even farther back, onto the referent of *the valet*, which, too, acquires the feature non-bounded recurrence. Or, phrased in pedestrian terms, here we do not have a valet doing something once as in (8a), we have a valet performing recurring acts of parking a car.

In a similar way, the indefinite iterativity (non-boundedness) feature, effectuated through a bare NP (a zero article) in *parking lots* and *valets* in (8c) and (8d), respectively, triggers recurrence (indefinite iterativity) in the referent of the verb *parked*, and this recurrence (indefinite iterativity) feature is then mapped onto the remaining NP components – *our car* and *the valet* in (8c), and *our car* and *the parking lot* in (8d).

The explanation of the temporal features of the referents of the situation-participant NPs in (8a-d) in the publication quoted above allows constructing similar sentences with the same (relatively) large number of situation-participant NPs – three, whereby each situation-participant NP is capable of changing the aspectual value of the sentence from perfective to imperfective by what should be called de-quantification. Here is a similar set of Greek sentences, (9a-f) – constructed examples with the biaspectual verb *servíro* 'serve', in which the temporal features of the referents of the verb and the situation-participant NPs are mapped onto each other in different ways:

(9)   a. O idioktítis tis tavérnas tha servírei$_{BIASP}$ ston tourísta éna topikó piáto [no leak, prototypically perfective]

'The taverna owner will serve the tourist a local dish'

b. O idioktítis tis tavérnas tha servírei$_{BIASP}$ stous touristes$_{LEAK}$ éna topikó piáto [one leak, imperfective]

'The taverna owner will serve tourists a local dish'

c. Idioktítes tavérnas$_{LEAK}$ stin periochí tha servíroun$_{BIASP}$ stous touristes éna topikó piáto [one leak, imperfective]

'Taverna owners in the area will serve the tourists a local dish'

d. Oi idioktítes tis tavérnas stin periochí tha servíroun$_{BIASP}$ stous touristes$_{LEAK}$ éna topikó piáto [one leak, imperfective]

'The taverna owners in the area will serve tourists a local dish'

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e. Idioktítes tavérnas$_{LEAK}$ stin periochí tha servíroun$_{BIASP}$ stous touristes$_{LEAK}$ éna topikó piáto [two leaks, imperfective]

'Taverna owners in the area will serve tourists a local dish'

f. Idioktítes tavérnas$_{LEAK}$ stin periochí tha servíroun$_{BIASP}$ stous touristes$_{LEAK}$ topiká piáta$_{LEAK}$ [three leaks, imperfective]

'Taverna owners in the area will serve tourists local dishes'

The first sentence (9a) has no Verkuylian leak and is hence perfective. The continuum here is in the opposite direction: from perfectivity to imperfectivity. The other sentences are imperfective, with leaks, each leak triggering non-bounded iterativity in the referent of the verb.

However, it must be emphasized now that Greek is structurally different from the Slavic languages in one specific respect: the number of biaspectual verbs in Greek seems to be lower. Also worth noting is that they are rarely mentioned in the literature. Tarpomanova (2013, 191) lists only three such verbs: *parkáro* 'park', *riskáro* 'risk', *aréso* 'like'. Markou (2022) provides no example of a biaspectual verb in Greek and describes biaspectuals as primarily borrowings from other languages. She maintains that the Greek system uses all possible means to integrate them and to adapt them to the domestic model (Markou, 2022, 11). This probably means that a potentially biaspectual borrowing in Greek is expected to be quickly processed by the grammatical system and provided with a perfective correspondence, whereby the original verb will preserve for itself the imperfective value only. To what extent this happens or not, is unclear.[1] In another publication, Markou (2019, 54) describes aspect in Greek as "a domain characterized by theoretical contradictions and terminological imprecision".

To sum up, Greek biaspectual verbs appear to be not too many and, with the literature generally silent on the issue, it is difficult to make a judgement as to their prevalence. Consider some more examples of Greek sentences with a biaspectual verb – *blokáro* 'block', in the future (10a, b) and in the present perfect, in (11a, b), further below.

(10)a. I ergatikí apergía tha blokárei$_{BIASP}$ tis diapragmatéfseis [no leak, perfective]

'The labor strike will block the negotiations'

b. Ergatikés apergíes$_{LEAK}$ tha blokároun$_{BIASP}$ tis diapragmatéfseis [one leak, imperfective]

'Labor strikes will block the negotiations'

Sentence (10a) will normally be read as perfective, as the referents of both subject and object are bounded (+SQA) and each refers to a single occurrence in time, hence a perfective

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[1] To the authors of this paper.

situation arises: a one-off participation of a particular group of workers in a single act (single industrial action) of blocking a single occurrence (instance) of negotiations. The temporal boundedness, encoded by the definite article, of the referent of the subject, and the temporal boundedness of the referent of the object, again encoded by the definite article, are mapped onto the referent of the aspectually ambivalent verb *tha blokárei* 'will block', coercing it from aspectual ambivalence into perfectivity (a Vendlerian accomplishment). But even without this analysis of the temporal values of the referents of the subject and the object, sentence (10a) clearly explicates perfectivity to the Greek native speaker, i.e., it signals boundedness on the time axis: a single completed act (industrial action) with an achieved telos, i.e., a pragmatic result. And if someone would like to question the temporal boundedness of the referents of subject and object in (10a) and its mapping onto the referent of the verb, let us consider sentence (10b). It features a non-bounded subject, non-boundedness marked by the zero article. This non-boundedness which represents, more precisely, non-bounded iterativity, is mapped onto the referent of the verb, forcing it from aspectual ambivalence (due to the biaspectuality) into imperfectivity (non-bounded iterativity). The non-boundedness is also mapped onto the referent of the object *tis diapragmatéfseis* 'the negotiations'. We now have *not* a single round of negotiations, as in (10a), but a non-bounded series of negotiations – unsuccessful because of the repeated (with no definite beginning and no definite end) labor strikes.

Now let us continue the analysis of CA explication with Greek sentences with present perfect verb forms. The Greek perfect is a perfective form by all standard grammatical definitions, it is used with perfective verbs only – barring minor exceptions of a technical nature, as in this case, with a biaspectual verb:

(11) a. I ergatikí apergía échei blokárei$_{\text{PERFECTBIASP}}$ aftés tis diapragmatéfseis [no leak, perfective]

'The labor strike has blocked the negotiations'

b. Ergatikés apergíes$_{\text{LEAK}}$ échoun blokárei$_{\text{PERFECTBIASP}}$ diapragmatéfseis$_{\text{LEAK}}$ [two leaks, imperfective]

'Labor strikes have blocked negotiations'

These two sentences represent a state of affairs different from the standard one, which treats the perfect as a perfective form. Despite the biaspectual verb, sentence (11a) explicates perfectivity due to the temporal boundedness of *i ergatikí apergía* 'the labour strike' and *tis diapragmatéfseis* 'the negotiations' – the boundedness marked through quantifiers. This temporal boundedness is then mapped onto the referent of the biaspectual verb. Conversely,

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(11b) explicates imperfectivity, due to the non-boundedness of *ergatikí apergía* 'labor strikes' and *diapragmatéfseis* 'negotiations'.[2] As argued by Dimitrova (2021), although the standard descriptions of Greek characterize the perfect as perfective, allowing perfective verbs only, actually the present perfect cannot be regarded as a truly perfective grammeme. Why? Because there are many cases with present perfects in which a nominally perfective verb is in fact coerced into signalling imperfectivity, indefinite iterativity, as in Dimitrova's examples (12a) and (12b):

(12)   a. I kóri mou den échei diavásei$_{PERFECTBIASP}$ poté kítrines efimerídes$_{LEAK}$

'My daughter has never read yellow newspapers'

b. Aftó to paidí den échei akoúsei$_{PERFECTBIASP}$ poté klasikí mousikí$_{LEAK}$

'This child has never listened to classical music'

The actual range (prevalence) of such cases (12a, b) in the language system can be established in well-targeted studies, using statistical methods. But these examples here certainly show that the Greek perfect, despite the obligatory use of perfective verbs in it, can by no means be described as a perfective grammeme – because it is capable of effectuating imperfectivity, systematically.

The sentences in (10), (11) and (12) demonstrate the complexity of the CA mechanism, with so many factors involved. For example, in this case definiteness and grammatical singularity and plurality are intertwined, and they also show how difficult it is to analyze these factors. But note also that the sentences in (10), (11) and (12), although more complex and intricate than some other, are nevertheless susceptible to a precise analysis.

So far in this paper only sentences with verbs that are aspectually ambivalent have been constructed and analyzed. Let us now do something different, viz., construct and then analyze two sentences with two situation participants in each and a verb that is aspectually marked – as perfective, in (13a), and as imperfective, in (13b). Put otherwise, this is a case of aspect effectuation in VA terms. In order to provide a more authentic example of imperfectivity corresponding to (13b), an appropriately matching sentence was extracted from the Internet to be used here, (13c):

(13)   a. O Próedros diélyse$_{AORIST}$ ti Voulí

'The President dissolved the Parliament'

b. O Próedros diélye$_{IMPERFECT}$ ti Voulí

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[2] According to Vasilis Symeonidis, a linguist and native speaker of Greek (personal communication), sentence (11b) with the two bare NPs does sound acceptable in certain contexts, although it is otherwise less common.

'The President was dissolving/dissolved repeatedly the Parliament'

c. Meteíche sta kyvernitiká symvoúlia, diélye_{IMPERFECT} ti Voulí kai prokírytte eklogés: schimátize ypiresiakés kyverníseis, ...

'He participated in the government councils, dissolved the Parliament and called elections; he formed caretaker governments, ...'

In contrast to all the previous sentences, in which aspect is effectuated in CA terms, the mapping here is in exactly the opposite direction: from the verb onto the NPs. The aorist (perfective) verb form *diélyse* 'dissolved [once]' in (13a) serves to map its boundedness onto the two NP referents *o Próedros* 'the President' and *ti Voulí* 'the Parliament', in the sense that each NP referent covers a single instance in time of the relevant entity – that can otherwise also be regarded as a material, physical object. Compare now the NPs *o Próedros* 'the President' and *ti Voulí* 'the Parliament' in (13b), which, in the non-progressive meaning of the verb form, refer *not* to single instances in time of two supposedly physical entities ("President" and "Parliament") but to indefinitely recurring, i.e., non-bounded in time, instances of the entities "President" and "Parliament". The idea that entities that are otherwise normally thought of as material, physical by the native speaker can also be regarded in language as constituting temporal stages (also called slices) of these entities in the minds of speaker and hearer has a long history in linguistics, dating back to Quine (1960) and Carlson (1977/1980).

Thus the analysis here – and earlier elsewhere (Kabakčiev, 2000; 2019) – of sentences with aspectually encoded verbs unconditionally refute Jakobson's (1957) previously acclaimed thesis that aspect is a grammatically category that has nothing to do with the participants in the situations. Precisely on the contrary, the grammatically encoded aspect value of a verb in a sentence/clause governs the temporal range of the participant(s) in a Vendlerian situation. This thesis was initially launched a long time ago (Kabakčiev, 1984) and later sophisticated (Kabakčiev, 2000; 2019). It was corroborated for the first time by Vounchev (2007, 86–87) and then again by Dimitrova (2021) and Shabashvili (in Shabashvili and Kabakčiev, 2021). To sum up, VA is not a grammatical category that has nothing to do with the participants in situations. It is a universal device, found in numerous languages around the world, for governing the temporal values of situation-participant NP referents. This generalization is a direct consequence of the understanding of aspect as "an all-pervading and perpetual process of mapping temporal features between elements of the sentence, especially between referents of verbs and of nominals" (Kabakčiev, 2019, 212).

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5.4. For comparison: a quick review of the biaspectuality phenomenon as found in studies of other Slavic languages

The specific status quo of the phenomenon of biaspectuality in Greek, especially its unclear prevalence in this language – in contrast to all the Slavic languages where biaspectuality is well known as a wide-ranging phenomenon, necessitates a short review of the status quo of Slavic biaspectuality too and the way it is generally interpreted in the aspectological literature.

Biaspectuality is indeed a wide-ranging phenomenon in VA-languages but the literature is rather indecisive in its descriptions. While in some publications on Slavic languages it is regarded as a well-investigated phenomenon, others maintain that biaspectuality is understudied (Mirohina, 2009, 21) or even not studied at all. In many studies it is *not* considered a major phenomenon and is either completely sidestepped (Rassudova, 1982; Glovinskaja, 2001; Shkunnikov, 2003; Karavanov, 2005; Sokolovskaya, 2008; Lagunow, 2014) – or only mentioned in passing (Stunová, 1993; Durst-Andersen, 1992; Gorlatov, 2009). Even strange statements, not corresponding to the language reality, are encountered, such that, Russian features an insignificant number of biaspectual verbs (Makarova, 2009, 10). Russian certainly has at least hundreds of biaspectual verbs.

Publications investigating aspect in terms of the CA theory on Slavic data from languages other than Bulgarian and Russian are almost non-existent. Two rare exceptions are Spasojević (2015), who acknowledges the existence of the CA theory (Verkuyl, 1972; 1993) but refrains from using it in her own analysis of Serbian data. Vaníková (2017), in her analysis of aspect in Latin, containing comparisons with Czech, demonstrates knowledge of CA – which unfortunately remains unused in her paper, but she could employ it in future investigations of Latin and Czech. It can easily be generalized from this short review of Slavic literature on aspect that the CA theory is almost never employed in cases of biaspectuality as here, in the present study, on sentences with an identical biaspectual verb and two or three situation-participant NPs – quantified (through an article or other determiner) or non-quantified (through a zero article, also known as a bare NP). The CA theory is also rarely employed as an approach to study aspect in Slavic languages in general – a very serious omission that ought to be made up for.

It has been established that languages with VA and no articles such as Russian and the other Slavic tongues (save Bulgarian) are not analyzable in sentences with verbs that are biaspectual in the same way as this is done in languages with VA featuring a definite article and no indefinite such as Bulgarian or Greek (Kabakčiev, 2021). Clearly, due to the lack of articles in

Georgian, this language would also be difficult to analyze in terms of aspect disambiguation in the way this has been done here on Bulgarian and Greek data, through the article-zero article contrast and in terms of quantification vs de-quantification. However, following the thesis that aspect is an all-pervading and perpetual process of mapping temporal features between elements of the sentence, an analysis of Georgian in CA terms ought to employ a different approach, an inverse one, in which the temporal range of situation-participant NP referents in the sentence is governed by the grammatical aspect of the verb. Compare the analysis of the Greek sentences in (13) above. But obviously a study of this kind is a task for the future.

6. Results and discussion

Because of the presence of a definite article in Bulgarian and Greek, CA is much easier to demonstrate in these two languages than in a VA-language without articles. As already shown above, this demonstration is especially effective with biaspectual verbs in sentences with three situation-participant NPs. Such sentences reveal structural regularities, in particular the article-aspect interplay and the complex interrelationships between article and aspecto-temporal categories and grammemes. The perfectivity of the sentence pattern investigated arises due to the article-encoded boundedness of three NPs; imperfectivity arises on account of non-boundedness observed in one NP or more than one.

This regularity must, according to the understanding here, be incorporated into the larger grammars of the relevant languages – comprehensive, academic, for university students, etc., and must be taught to students of linguistics and to learners seeking higher second-language proficiency and/or deeper knowledge of their native language. The analysis here also paves the way for solving another important issue: exactly how CA in VA-languages without articles (most Slavic ones, Georgian, etc.) must be analyzed, then incorporated into grammars and textbooks and taught. The resolution of this problem – almost never explored – must be based on analyses of the interplay between aspectually unmarked verbs and NPs in languages with no articles. Grammars of such languages – without articles, ought to incorporate chapters presenting the major systems involved: aspectual, aspecto-temporal, the nominal-determination one, other relevant ones. Especially the way definiteness and indefiniteness are effectuated must be at least outlined – something that has been attempted in linguistics many times but never received a satisfactory explanation.

The analysis here also leads to an assumption that biaspectuality in Greek is *not* a wide-ranging phenomenon, which means that it may even turn out to have a relatively low prevalence.

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Conversely, for Bulgarian it is common knowledge, registered in numerous publications, that biaspectuality is a strongly widespread phenomenon. However, judgements with some precision in this field can hardly be made now, due to the following reasons. Rough calculations point to an estimated 10% presence of biaspectual verbs among all verbs in the modern lexicon of Bulgarian. But this large number may have grown even higher in recent years, due to the never-ending influx of verb borrowings in Bulgarian, in technical areas with a serious impact on peoples' lives, such as the use of computers, smartphones, modern TV, AI, software applications, etc. These borrowings are usually biaspectual. Thus a somewhat provisional conjecture for this study should be that while biaspectuality is indeed a phenomenon observed in both Bulgarian and Greek, the Bulgarian phenomenon is much more widespread than the Greek one.

7. Conclusive remarks

How is aspect effectuated in CA terms? In CA-languages and when explicated compositionally in VA-languages (most typically in cases of biaspectuality), aspect is realized as an extremely complex interplay between the temporal values of NP-referents and verb referents, and adverbials. But this does not exhaust the picture of CA explication. As shown above, added to it must be an even more complex interplay between the temporal values of sentence components and pragmatic factors such as "knowledge of the world".

Albeit in a rather peripheral manner, CA definitely exists in VA-languages. This is a language feature that cannot be subjected to any shade of a doubt and has been demonstrated here in some detail – not only on Bulgarian data, which is prolific, but also on Greek material, the latter being more restricted in volume. The CA phenomenon must therefore be incorporated into the larger grammars of the two languages as well as in the process of teaching Bulgarian and Greek to students of more advanced levels of language acquisition, and especially to future experts in linguistics (both theoretical and applied), translators, interpreters, language teachers. The fact that in Greek the biaspectuality phenomenon, where CA is most readily explainable, has a restricted range, cannot be a reason for its sidestepping in grammars and other grammatical descriptions.

Finally, this study facilitates a statement to the effect that actually *all* VA-languages, including all the Slavic languages without articles (i.e., save Bulgarian) and also Georgian, feature CA as a peripheral phenomenon. Hence, languages with prototypical VA systems such as Slavic and Georgian, featuring perfective verbs and no articles, are to be investigated as to

how exactly aspect relates to the temporal values of situation-participant NP referents (boundedness vs non-boundedness, singularity vs plurality and iterativity, bounded vs non-bounded iterativity, etc.) – to reveal in the long term the precise way in which aspect in verbs governs temporal values of NP referents.

Division of labor. Kabakčiev is responsible for the correct presentation and interpretation of the Slavic data. Dimitrova is responsible for the correct presentation and interpretation of the Greek language data. The authors are equally responsible for the correct presentation of the overall theoretical model.

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