Quantification and Aspect[*]

Anna Maria Di Sciullo and Roumyana Slabakova
UQAM   **University of Iowa**

1. Introduction

In this paper, we explore the relations between structure and interpretation in natural languages and the contributions of morphological and syntactic feature structures to D- and A-quantification calculi. We assume a model of grammar where morphological and syntactic structure are based on asymmetrical relations, but differ with respect to the realization of the asymmetry. Following the Minimalist program (Chomsky 1995-2001), we argue that the derivation of words does not coincide with the derivation of phases. Fully inflected lexical items are part of the numeration, and their formal features are checked in the syntactic derivation. We also assume Asymmetry Theory (Di Sciullo, 1999-2001, and forthcoming), where morphological expressions and syntactic expressions are derived in different planes of the computational space, and are different instances of generic operations and economy conditions.

It is widely accepted that D-quantification differs from A-quantification (Partee, Bach and Kratzer 1987). In languages such as English, the definite feature on a DP or a PP complement is related to the aspectual structure of the verbal projection it is a part of (Tenny, 1994, among other works). In Romance languages, functional features, e.g., the terminative feature [T], may have an effect on the aspectual properties of verbal projection (Di Sciullo 1997, 1999, and forthcoming). In Slavic, perfective prefixes (preverbs) are basically A-quantifiers contributing a specific reading to the whole VP. (Filip 1992, 1993, Piñon 1995).

We bring forward new data from Slavic sentences and verbal forms in support of the claim that prefixes encoding telicity [T] impose a specific reading not only on determinerless DPs in languages like Russian, Czech and Polish, but also on overtly unspecified cardinality DPs as in Bulgarian. We use the object-denotation of DPs as evidence for a [T] feature taking asymmetric scope over arguments (subjects as well as objects). We propose that A-quantification, [T] calculus, and its effect on D-quantification are obtained compositionally given the configurational asymmetry between external [T] and internal [T] in phrase structure. We refer to this hypothesis as the [T]/[T] asymmetry hypothesis.

2. Perfectivity and specificity

The parallel between perfectivity and specificity has been widely discussed in the literature on English, Romance and Slavic aspect. It has been noticed that Slavic languages, e.g., Russian as in (2) doesn't work the same way as English (Wierzbicka 1967, Forsyth 1970, Filip 1992, Krifka 1998).

---

(1) Claire ate an apple / the apple / three apples / a bag of popcorn   *telic*
(2) Claire ate apples / popcorn.   *atelic*
(3) Ja yel   gruši / tort   *atelic*   (Russian)
   I   eat-PAST pears-ACC / cake-ACC
   'I was eating (some) pears / cake.'
(4) Ja s-yel   gruši / tort   *telic*
   I PV-eat-PAST pears-ACC / cake-ACC
   'I ate all the pears / the whole cake.'

The effect of the verbal prefix in the Bulgarian examples is such that it overcomes the unspecified cardinality of the object.

(5) Xudožnikət na-risuva   kartini i izleze   da gi prodade na ulicata   (Bulgarian)
   painter-DET PV-paint-AOR pictures and went out to them sell in street-DET
   'The painter painted some pictures and went out to sell them in the street.'
(6) Xudožnikət na-risuvaše   kartini i   izlizaše da gi prodava na ulicata
   painter-DET PV-paint-IMP pictures and went out to them sell in street-DET
   'The painter used to paint some pictures and go out to sell them in the street.'

These examples indicate that perfective prefixes encoding telicity impose a specific reading not only on determinerless DPs in languages like Russian, Czech and Polish, but also on overtly unspecified cardinality DPs like the ones in Bulgarian.[1]

3. Left periphery

The literature on Slavic aspect usually discusses verbal prefixes as a group of affixes that produce perfective verbs out of imperfective roots. But not all verbal prefixes traditionally classified as "perfective" prefixes have the same effect over argument DPs. In this section we will discuss a division in the seemingly homogeneous group of verbal prefixes, proposed originally for French and Italian aspectual prefixes (Di Sciullo and Klipple, 1994; Di Sciullo, 1997, 1999, 2000, 2001, see also Babko-Malaya, 1999 for a similar distinction between "lexical" and "superlexical" prefixes).

3.1. French and Italian prefixes

In morphological structure, the configurational difference between Internal (directional and locational) and External (iterative and inverse) prefixes, depicted in (8), expresses correct semantic and syntactic properties of prepositional prefixation in a Romance verbal projection.

(7) [External prefixes [Internal prefixes V]]

Di Sciullo (1997, 1999) shows, on the basis of prefixed verbal structures from Italian and French, that internal prefixes (directional) may change the telicity of the event denoted by the verbal projection they are a part; whereas external prefixes (iterative and inverse) do not have this effect. The external/internal prefix hypothesis correctly predicts the linear order properties of prefixes:
i) external prefixes must precede internal prefixes; ii) external prefixes may be iterated and co-occur, while internal prefixes, as they are in the argument-structure domain of a verbal projection cannot be iterated and co-occur; iii) in denominal and deadjectival verbs, an internal prefix must follow an external one in the verbal construct; iv) as they are part of the argument-structure domain

---

[1] It is important to keep in mind, in the following sections, that we use bare plurals and mass nouns, grouped together under the label Bare Nouns (BNs), to show quantificational effects of verbal predicates over nominal arguments. Bulgarian BNs are particularly well suited for such a demonstration, since, parallel to Romance BNs and unlike English BNs, they behave as indefinites, à la Heim (1982), i.e., quantificational variables existentially or generically bound (Longobardi, to appear). Hence, they can only obtain their existential or generic interpretation through existential or generic quantifiers independently provided by the sentence logical form. In our system, existential closure is provided by instances of [T].

of a verbal projection, internal prefixes may affect the argument structure of the projection they are adjoined to, as well as the *Aktionsart* of the verbal projection; v) finally, as internal prefixes may change the telicity of the verbal projection they are adjoined to, it is predicted that they cannot be adjoined to telic predicates, whereas, external prefixes are not subject to this restriction, as they do not affect the telicity of the event they are adjoined to.

3.2. Internal/external prefixes in Slavic
The prefixes *pre-* ('repeated action') and *po-* ('briefly') have adverbial properties in (8) and (9) in the sense that they provide adverbial modification to the eventuality denoted by the root. The typically internal prefix *na-* 'on' has prepositional properties and may be projected as a preposition, cf. (10). It does not contribute anything to the verbal root meaning except telicity, an inherent endpoint to the eventuality as in (11). It can be regarded as a pure telicity marker, as opposed to the adverbial prefixes *pre-* and *po-* in (8) and (9).

(8) bojadisam 'paint'   (9)   četa 'read'   (10) na ulicata 'on the street'
    pre-bojadisam 're-paint'   po-četa 'read for a while' (11) piša 'write'
                                                             na-piša 'write out in full'

3.3. Predictions
The configurational difference between prefixes accounts for the linear order properties of prefixes. The analysis correctly predicts that an external prefix must precede an internal one, the reverse order being ungrammatical.

(12)   pro-četa 'read in full'   (Bulgarian)
       pre-pro-četa 'read in full once again'
       *pro-pre-četa 'read in full once again'

Furthermore, whenever prefixes are attached onto an adjectival root, e.g. *red, fat,* externals can attach to root only after internals have already attached.

(13)   červja 'make red, redden'   *atelic*   (14)   debeleja 'get fat'   *atelic*
       na-červja 'redden'   *telic*   na-debeleja 'get fat'   *telic*
       *pre-červja 'redden again'   *po-debeleja 'get a little fat'
       pre-na-červja 'redden again'   po-na-debeleja 'get a little fat'
       *na-pre-červja 'redden again'   *na-po-debeleja 'get a little fat'

A second prediction is that external preverbs can be iterated, while internal preverbs supplying the endpoint of the event cannot.

(15)   pre-pre-iz-bra 're-re-elect'
       *iz-iz-bra 'elect'
        pre-pre-čerta 're-re-draw'
       *na-na-čerta 'finish drawing'

Thirdly, when more than one preverb occur on a given stem, it is only one of them that supplies the endpoint of the event, the others offer additional meanings similar to adverbial manner modification. Take the example in (17). The preverb na- is supplying the end point, the preverb po- offers an attenuative meaning of doing something to a small degree, and the preverb iz- encodes distributivity of the event over a lot of participants.

(16) karax se 'I quarrelled'   *atelic*   po-karax se 'I quarreled for a while'   *atelic*
      s-karax se 'I quarrelled' *telic*   po-s-karax se 'I quarreled for a while' *telic*
      iz-po-karax se 'I quarreled with everyone'

Fourthly, and most importantly, the external iterative prefix does not alter the *Aktionsart* of the verb, while internal prefixes do so, since they signal telicity. In order to illustrate that, we will compare the interpretations of (17) where the verb has an internal prefix and (18) where the verb has an external prefix:

(17)   Xudožnik∂t na-risuva   kartini za pet časa /*pet časa
        painter-DET PV-paint-AOR pictures in five hours / *for five hours
        'The painter painted some pictures in five hours / *for five hours.'
(18)   Xudožnik∂t pre-risuva   kartini ? za pet časa /pet časa
        painter-DET PV-paint-AOR pictures in five hours / for five hours
        'The painter re-painted (some) pictures in five hours / for five hours.'

In (17) the presence of the internal prefix brings forward a telic interpretation, although the direct object is a bare plural noun. In (18) both a telic and an atelic interpretation are available, as the usual time adverbial tests show. The actual interpretation of the sentence will be based on discourse context or temporal adverbials positioned higher in the structure.

   Some more evidence for the above analysis comes from biaspectual verbs in Bulgarian. There are some borrowed verbs in Bulgarian like *organiziram* 'organize', *arestuvam* 'arrest', *remontiram* 'repair'. As late borrowings into the language, biaspectual verbs do not employ prefixes to become perfective (Kabakčiev 1984). They do not follow the typical pattern of Bulgarian verbs:

(19) imperfective (activity) root = atelic verb
(20) perfective prefix + imperfective (activity) root = telic verb

Crucially, those verbs behave very much like English eventive verbs: the cardinality of the DP object determines the interpretation (I in the superscripts stands for imperfective, P for perfective). These verbs are ungrammatical with endpoint of the event prefix like *na-,* as (22) indicates. On the other hand, as it is the case for Romance and English, the iterative prefix *pre-* can appear with these verbs without changing their *Aktionsart,* cf. (23).

(21) a. Mexanicite   remontiraxa $^{I/P}$ koli *atelic*   b. Mexanicite remontiraxa $^{I/P}$ kolite   *telic*
        mechanics-DET repair-3pS/PAST cars   mechanics-DET repair-3pS/PAST cars-DET
        'The mechanics repaired cars.'   'The mechanics repaired the cars.'
(22) a. *Mexanicite na-remontiraxa $^{I/P}$ kol   b. *Mexanicite na-remontiraxa $^{I/P}$ kolite.
(23) a. Mexanicite pre-remontiraxa $^{I/P}$ koli *atelic* b. Mexanicite pre-remontiraxa $^{I/P}$ kolite *telic*
        mechanics-DET PV-repair-3pS/PAST cars   mechanics-DET PV-repair-3pS/PAST cars
        'The mechanics repaired cars again.'   The mechanics repaired some cars again.'

   To summarize this section, we have shown that certain pre-verbal affixes in Slavic may affect the internal aspectual properties and in particular the telicity of the root they are adjoined to, as originally argued for in Di Sciullo (1997, 1999) on the basis of Romance verbs. In particular, we have provided evidence to show that it is only internal but not external prefixes in Slavic that act as A-quantifiers and change the interpretation of argument DPs. Thus we have qualified the traditional approach assuming that all perfective prefixes in Slavic bring forward a specified cardinality interpretation in nominal phrases.[2]

---

[2] Arguing for an essentially similar analysis, Filip (to appear) shows that Czech prefixed verbs differ in their quantizing properties depending on the spatial orientation of the prefixes they contain: Only Goal-oriented prefixes (e.g., *při-* 'to') but not Source-oriented ones (e.g., *od-* 'away, from') yield quantized verbs. In the examples in (24), we have a measure expression 'one meter' which acts as a quantizing modifier, applying to homogeneous predicates and turning them into quantized predicates. In the case of (24b) this is impossible, because the predicate is already quantized. In the case of (25), the attenuative prefix *po-* acts as the measure expression, demonstrating similar effects.

4. [T] verbs

Not only are some Slavic perfective prefixes exempt from A-quantifier status, but there are some roots that can be classified as such. We will show that the lexical sub-event feature Terminative [T] has a similar semantic effect in Slavic as overt perfective morphemes.

We assume the system of aspectual feature proposed by Di Sciullo (1997) according to which eventuality types can be defined in terms of two features: Terminative [T] and Subinterval [S]. Thus we have: states:[,]; achievements:[,T]; activities:[S,];accomplishments:[S, T]. As discussed in Di Sciullo (1997) on the basis of Romance, the bivalent aspect features system allows one to identify natural classes of categories with respect to aspect. Thus some verbs and prepositions form a natural class with respect to the [T] feature, other elements do not. Moreover, given the Adjunct Identification Condition (Di Sciullo 1997: 57), according to which an adjunct identifies an unspecified feature of the category it adjoins to, it follows that a [T] preposition cannot be adjoined to a [T] verb. This prediction holds for Romance, and it also holds for Slavic. An internal [T] prefix may not be adjoined to an achievement, as this predicate is lexically, or inherently, a [T] verb.[3]

(24) kupja 'buy'   *telic*
      iz-kupja 'buy all the available goods'   *adverbial meaning*
      na-kupja 'buy in big quantities'   *adverbial meaning*
      *na-kupja 'finish buying'   *double telic*

The following examples from Russian and Polish contain the achievement verbs *buy* and *give*, which are perfective roots, [T] verbs, and do not need a perfective prefix to denote a telic event. Note that the interpretation of the DP object is of a specific quantity of material.

(25) Ja kupila   material   (šit' plat'ye)   (Russian)
      I buy-PAST   material-ACC (to make a dress)
      'I bought all the necessary material (for a dress).'
(26) (Ja) dałam   chłopcu pieniądze   (Polish)
      I give-PAST boy-DAT money-ACC
      'I gave the boy the money.'

Bulgarian exhibits the same phenomenon that we observed in section 2 with perfective prefixes. Although the object is a mass noun, marked indefinite by the lack of determiner on it, it is still interpreted as a specific quantity of money, as the pronoun indicates. This is due to the [T] feature of the verbal root.

(27) Ivan dade   pari na Marija i tja gi po-xarči   za den. (Bulgarian)
     Ivan give-AOR money to M. and she it PV-spend-AOR in a day
     'Ivan gave Maria some money and she spent it in a day.'

(i) a.   Od-sedl   si asi metr   od okna.   b. *Při-sedl si asi metr k oknu.   (Czech)
         away-sat.down refl about meter from window   to-sat.down refl about meter to window
         'He sat down about a meter away from the window.'   'He sat down about a meter away from the window.'
(ii) a. Po-vy-táhl   káru z příkopu.   b. *Po-do-táhl   káru k/do příkopu.
         att-out-pull cart from ditch   att-to-pull cart (in)to ditch
         'He pulled the cart partly out of the/a ditch.'   'He pulled the cart partly into the/a ditch.'

Since examples (i-b) and (ii-b), ungrammatical in Czech, are perfectly fine in Bulgarian, we conclude that differences may exist among Slavic languages in the exact form the quantizing contribution of perfective prefixes takes, and we leave the matter to further fine-tuning research. It is important to notice, however, that much evidence converges against the traditional view that Slavic perfective prefixes are a homogeneous group.

[3] Furthermore, Slabakova (2001) demonstrates experimentally that the restriction that telic verbs cannot be further telicized, reflecting the same prediction (cf. also Tenny, 1994), is part of the mental grammar of Bulgarian native speakers.

(28) Ivan davaše pari na Marija i   tja gi po-xarčvaše   za den.
     Ivan give-IMP money to M. and she it PV-spend-IMP in a day
     'Ivan used to give Maria some money and she used to spend it in a day.'

The facts discussed in this section extend the empirical coverage of the feature analysis of aspect as well as the restrictions on the adjunction of internal [T] prefixes to [T] verbal predicates. In a nutshell, within the verbal projection, only one [T] feature can be active, supplied either by a lexically telic root, or a perfective prefix, or an object of specified cardinality.

5. Aspectual Tense and Boundedness at the Right Periphery

Depraetere (1995), following Declerck (1989), argues for the necessity of a new distinction in evaluating the aspectuality of sentences. Vendler' (1967) four aspectual classes, states, activities, accomplishments and achievements, are partially based on the distinction of telicity, the availability or unavailability of potential inherent endpoints in the events. Thus, states are outside (tangential to) this distinction pertaining to the dynamic aspectual classes only, and of the latter, activities are atelic, while accomplishments and achievements are telic. Dowty's (1979) Imperfective Paradox uses the effect of the progressive on the two types of events: the progressive form seemingly "takes away" the built-in endpoint in accomplishment sentences as *John was drawing a circle*. Such sentences clearly demonstrate the need for two aspectual distinctions: one based on potential endpoints (telicity) and the other based on actual endpoints, which is labeled boundedness. The two distinctions are exemplified below with sentences from Bulgarian.

(29) Ivan pro-čete   Vulšebnata planina ot Tomas Man.   (Bulgarian)
     John PV-read-AOR the magic mountain by Thomas Mann
     'John read 'The Magic Mountain' by Thomas Mann'   (PREFIX + AORIST = *telic, bounded*)
(30) Ivan čete   Vulšebnata planina ot Tomas Man.
     John read- AOR the magic mountain by Thomas Mann
     'John read from 'The Magic Mountain' by Thomas Mann'
                                                    (NO PREFIX + AORIST = *atelic, bounded*)
(31) Ivan pro-čita-še   Vulšebnata planina vsyaka godina.
     John PV-read-IMP the magic mountain every year
     'John read 'The Magic Mountain' completely every year'
                                                    (PREFIX + IMPERFECT = *telic, unbounded*)
(32) Ivan čete-še   Vulšebnata Planina kogato go vidyax.
     John read-IMP the magic mountain when him (I) saw
     'John was reading 'The Magic Mountain' when I saw him'
                                                    (NO PREFIX + IMPERFECT = *atelic, unbounded*)

As the examples in (29-32) indicate, there is a clear parallel between telicity and perfective [T] prefixes, the aorist/imperfect tenses and boundedness in Bulgarian. The Aorist can be assumed to encode boundedness while the Imperfect encodes unboundedness.

6. The configurational [T]/[T] hypothesis

Thus, an aspectual tense is bounded if it represents a situation as having reached a temporal boundary, irrespective of whether the situation has an inherent endpoint or not (Depraetere, 1995). The above data show that there is a clear parallel between telicity and perfective prefixes, the aorist/imperfect tenses and boundedness in Bulgarian: The aorist can be assumed, we propose, to encode the feature [T] externally to the vP while the imperfect does not.

     The sentence in (33) illustrates the specificity effect. Note that the verb is an activity (*eat*), the object is a bare plural (*sandwiches*), consequently the VP is atelic. It is only the Aorist tense morpheme that imparts the meaning of specificity to the whole sentence. Compare the sentences in (33) and (34). They differ only in their expression of boundedness through the Imperfect and Aorist morphemes, and their interpretation is radically different.

(33) Ivan jade sandviči zaštoto gi xaresa mnogo   (Bulgarian)
    Ivan eat-AOR sandwiches because them liked a lot
     'Ivan ate some sandwiches because he liked them.'   *External [T]*
(34) Ivan jadeše sandviči kogato go vidjax včera
    Ivan eat-IMP sandwiches when him I-saw yesterday
    'Ivan was eating some sandwiches when I saw him yesterday.'   *No External [T]*

We propose that two sets of [T] features, internal [T] and external [T], provide A-quantification. As they are in asymmetrical relation in TP, external [T] sister contains, in the sense of Chomsky (1998), internal [T]. Internal and external [T] take asymmetric scope over the vP and its arguments.

(35) [TP External T   [vP   [VP   Internal T   ]]

Given monotonic bottom up derivations, and the assumption that only positive features are active in core syntax, the configurational [T]/[T] asymmetry hypothesis has several empirical consequences.

(36) **[T]/[T] asymmetry hypothesis**
    A-quantification, [T] calculus, and its effect on D-quantification are obtained compositionally in the syntactic derivation given the configurational asymmetry between external [T] and internal [T].

An argument is interpreted as specific in the syntactic derivation i) by feature checking in *v*, given the morphological [T] features of *v*, and ii) by feature checking in Tense, given temporal [T] features. One consequence is that if internal [T] is obtained at some point of the derivation, it remains constant throughout the derivation. This follow from the monotonic bottom up derivation we are assuming for the derivation of phrasal syntax. For example, in Bulgarian, the imperfect tense cannot reverse the specific interpretation of an object that is due to a lexical telicity feature as in (38), even if the whole event becomes durative, comprising an unbounded series of telic sub-events. The chart in (39) includes the four possible combinations and indicates the effect on the object interpretation, specific quantity [SQ].

(37) Marina kupi   kafe   i   go iz-pi   gorešto   (Bulgarian)
     Marina buy- AOR coffee and it   PV-drink- AOR hot
     'Marina bought a specific quantity of coffee and drank it hot.'
(38) Vseki den Marina kupuvaše kafe i   go iz-pivaše   gorešto
    every day Marina buy- IMP coffee and it   PV-drink- IMP hot
    Every day Marina used to buy a specific quantity of coffee and drink it hot.'

(39) Example	Features	Object Interpretation
Marina kupi kafe Marina buy-AOR coffee	[External T, Internal T]	[+SQ]
Ivan jade sandviči Ivan eat- AOR sandwiches	[External T]	[+SQ]
Marina kupuvaše kafe Marina buy-IMP coffee	[Internal T]	[+SQ]
Ivan jadeše sandviči Ivan eat- IMP sandwiches	[no T]	[- SQ]

So, the External [T] feature can only have a quantificational effect on the object interpretation if Internal [T] is not present. If Internal [T] is present, external [T] applies vacuously. This follows from our proposal given the monotonic bottom up derivation including asymmetrically related [T] features determining A-quantification which itself determines D-quantification.

Furthermore, there are parallel effects of verbal A-quantification on nominal phrases in subject position. Consider the effect of perfective preverbs and lexical perfective predicates in Russian. Note that the sentence in (40) has a stative predicate (*love*) and the sentence in (41) has an activity predicate (*sing*). The interpretation of the subject NP *soldaty* 'soldiers' in these examples can go both ways depending on the context. Three different informants stated that the existential indefinite reading is dispreferred but not unavailable when the right context is evoked.

(40) Soldaty   lyubili   gruši   [+/-SQ]   (Russian)
     soldiers-NOM love-PAST   pears-ACC
     '(The) soldiers loved pears.'
(41) Soldaty   peli   pesni   [+/-SQ]
     soldiers-NOM sing-PAST   songs-ACC
     'The soldiers sang songs.' / 'There were some soldiers who sang songs.'

This is not the case in (42) and (43), however. The sentence in (42) has an overt perfective prefix, while the one in (43) is an achievement, a lexical telic predicate. The only interpretation available for the subjects in both sentences is 'a specified by the context set of soldiers'.

(42) Soldaty   s-yeli   gruši   [+SQ]
     soldiers-NOM PV-eat-PAST   pears-ACC
     'The soldiers ate the pears.'
(43) Soldaty   našli   den'gi   [+SQ]
     soldiers-NOM find-PAST   money-ACC
     'The soldiers found the money.'

Examples from Bulgarian allow us to distinguish between two instances of [T] and indicate that each one of them has the same effect. Recall (cf. footnote 1) that Bulgarian BNs are variables and obtain their existential or generic interpretation (object vs. kind denotation) through existential or generic operators independently supplied by the sentence logical form (Longobardi, to appear).

(44) Vojnitzi iz-jadoxa   krušite   na lozeto.   *telic*   (Bulgarian)
     soldiers PV-eat-AOR pears-DET in the vineyard
     '(Some subset of the) soldiers ate the pears in the vineyard.'
(45) Vojnitzi iz-jaždaxa krušite na lozeto vsjaka godina.   *telic iterative*
     soldiers PV-eat-IMP pears-DET in the vineyard
     '(Some subset of the) soldiers were eating the pears in the vineyard every year.'

Thus, the presence of the perfective prefix (Internal [T]) contributes to the specific interpretation of the subject, independent of presence or absence of External [T]. On the other hand, in order to tease apart the contribution of External [T], the following examples are relevant.
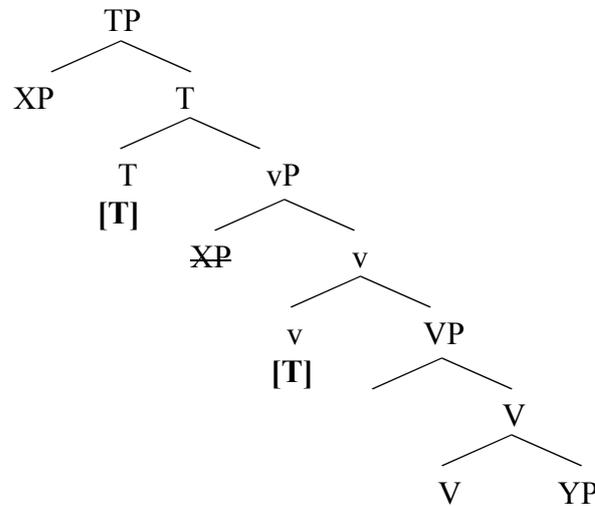
(46) Vojnitzi pjaxa   patriotični pesni, i vsički gi slušaxa.   (Bulgarian)
     soldiers sing-AOR patriotic songs, and everyone them listened
     'Soldiers sang patriotic songs and everyone listened to them.'
(47) #Vojnitzi peexa   patriotični pesni, i vsički gi slušaxa.
     soldiers sing-IMP patriotic songs, and everyone them listened
     'Soldiers were singing patriotic songs and everyone listened to them.'
The verbs in the examples above are imperfective, i.e., lacking Internal [T]. The verbal form exhibiting External [T] as in (46), however, can make the subject specific, while the one lacking External [T] as in (47) cannot.

The facts presented above show that in Bulgarian a bare noun subject interpretation ranges over a continuum of meanings from 'generic' to 'specific', depending on the value of the internal or external [T] feature of the verbal predicate. Together the two sources of A-quantification are argued

to take scope over the external and the internal arguments. Thus the subject also falls under the scope of the boundedness and telicity marking. This follows from our analysis, as internal [T] is part of the vP domain, which includes the lexical subject (Spec, vP) and External [T] is part of the TP domain, which includes the functional subject (Spec, TP). This is illustrated below.

(48)

```
                        TP
                   ╱         ╲
                 XP            T
                          ╱         ╲
                        T              vP
                       [T]        ╱         ╲
                                X̶P̶          v
                                        ╱       ╲
                                      v          VP
                                     [T]       ╱     ╲
                                                    V
                                                ╱       ╲
                                              V           YP
```

The syntactic representation in (48) is a minimalist representation, in the sense of Chomsky (2001), of the [T]/[T] hypothesis. Thus, there is no Aspect projection, either in the lexical or in the functional domain. Rather, we assume that internal aspectual features are part of the v projection, while the external aspectual features are part of the Tense projection. The aspectual [T] feature is part of the feature specification of the functional heads small v and Tense. The features are part of the maximal projections vP and TP including the object, YP in (48), and the subject, XP in (48). Thus the [T]/[T] hypothesis ensures the relation between A-quantification and Q-quantification, as the [T] features of v and the [T] features of Tense compositionally derive the aspectual feature structure of TP and has consequences for the specificity feature of the DPs, both object and subject.

7. Summary

D-quantification forms a constituent with a projection of N, while A-quantification forms a constituent with some projection of V. We proposed that the differences and the relations between the structure and interpretation of D- and A-quantification in Slavic and Romance languages followed from the geometry of the structural descriptions derived by the grammar. We proposed that A-quantification, [T] calculus, and its effect on D-quantification are obtained compositionally given the configurational asymmetry between external [T] and internal [T].

Our proposal has consequences for the specificity and the interaction of morphological and syntactic derivation. The external/internal configurational asymmetry holds in the derivation of [T] features in morphology and in syntax. We have shown that while the internal prefixes and inflectional heads determine the [T] features in a verbal predicate, and its A-quantification, the checking of internal functional features of v and external functional features of Tense, determines D-quantification in phrasal syntax. The specific interpretation of a DP, even in languages such as Slavic where the D is covert, and the telic properties of a predicate are determined compositionally given the configurational Internal/External asymmetries.

References:

Babko-Malaya, O.: 1999, *Zero Morphology: A Study of Aspect, Argument Structure, and Case*, Ph.D. Dissertation, Rutgers.
Chomsky, N.: 2001, Beyond Explanatory Adequacy. Ms. MIT.
Chomsky, N.: 1998, Minimalist Inquiries, ms, MIT.
Chomsky, N.: 1995, *The Minimalist Program*, The MIT Press, Cambridge, MA.
Declerck, R.: 1989, 'Boundedness and the Structure of Situations', *Leuvense Bildragen* **78**, 285-318.
Delfitto, D. and Bertinetto, P. M.: 2000, 'Word Order and Quantification over Times', in J. Higginbotham, F. Pianezi, and A. Varzi, (eds), *Speaking of Events*, Oxford University Press, pp. 207-244.
Depraetere, I.:1995, On the Necessity of Distinguishing between (Un)boundedness and (A)telicity, *Linguistics and Philosophy*, **18**, 1-19.
Di Sciullo, A.M.:2005, *Asymmetry in Morphology*. The MIT Press: Cambridge, MA.
Di Sciullo, A.M.: 2001, 'The Asymmetry of Morphology', in *Many Morphologies*. Cascadilla Press.
Di Sciullo, A.M.: 2000, 'Paths in Words', *ESSLI 2000*. Birmigham.
Di Sciullo, A.M.: 1999, 'The Local Asymmetry Connection', *MITWPL* **35**: 25-47.
Di Sciullo, A.M.: 1997, 'Prefixed Verbs and Adjunct Identification', in A.M. Di Sciullo (ed), *Projections and Interface Conditions*, Oxford University Press: New York, pp. 52-73.
Di Sciullo, A.M. and Klipple, E.: 1994, 'Modifying affixes', WECOL.
Dowty, D. 1979. *Word Meaning and Montague Grammar*. Reidel, Dordrecht.
Partee, B., Bach, E., and Kratzer, A.:1987, 'Quantification: A crosslinguistic investigation', NSF proposal, Amherst: UMAss
Filip, H.:1992, 'Aspect and interpretation of nominal arguments', in Canakis, C. P., Chan, G.P., Marshall Denton, J. (eds), *Proceedings of the Twenty-Eighth Meeting of the Chicago Linguistic Society,* The University of Chicago, Chicago, pp. 139-158.
Filip, H.: 1993, *Aspect, situation types, and nominal reference*. PhD thesis, University of California at Berkeley. Published as 1999, *Aspect, Eventuality Types and Noun Phrase Semantics*. Garland, New York/London.
Filip, H.: To appear, 'Prefixes and the delimitation of events', Special issue of the *Journal of Slavic Linguistics*, ed. by Wayles Brown and Barbara Partee.
Heim, I.: 1982, *The Semantics of Definite and Indefinite Noun Phrases*. Ph.D. Dissertation, University of Massachusetts, Amherst, MA.
Longobardi, G.: In press, 'How comparative is semantics? A unified papametric theory of bare nouns and proper names', *Natural Language Semantics*.
Piñon, C.: 1995, *An Ontology of Event Semantics*. Ph.D. Dissertation, Stanford University.
Tenny, C.: 1994, *Aspectual Roles and the Syntax-Semantics Interface*. Kluwer.
Slabakova, R.: 2001, 'Aspectual constraints in the mental lexicon', *Journal of Psycholinguistic Research*, **30**, 2, 197-217.
Wierzbicka, A. 1967, 'On the Semantics of Verbal Aspect in Polish', *To Honor Roman Jakobson*, vol. 3, Mouton, the Hague, pp. 2231-2249.
Verkuyl, H.: 1972, *On the Compositional Nature of the Aspects.* Reidel, Dordrecht.
Verkuyl, H.: 1993, *A theory of Aspectuality: The Interaction between Temporal and Atemporal Structure.* Cambridge University Press, Cambridge.