QUANTIFICATION, ASPECT AND LEXICON

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1 Introduction

Languages differ in the variety of quantificational structures they employ (cf. Bach et al. (eds.), 1995) and in the extent to which the surface form of various quantificational structures provides us with explicit clues about semantic interpretation. The semantic structure of sentences with a single quantificational operator can be determined by the overt phrase structure or by the phrase structure together with information about topic and/or focus. If the semantic structure of quantified sentences is underdetermined (or ambiguous) by both the phrase structure and topic and/or focus structures, it may be disambiguated by the non-linguistic context (cf. Partee, 1995:541).

I propose that there is yet another factor that determines the semantic structure of quantified sentences: namely, the argument structure. A case in point are sentences in which the main quantificational operator is a lexical V-operator. Drawing mainly on the data from Czech, I propose that lexical V-operators function as quantifiers over episodic predicates and their arguments. They bind the variable introduced by the Incremental Theme argument (Hinrichs, 1985; Krifka, 1986; Dowty, 1988,1991), and possibly also the event variable (Davidson, 1967; Parsons, 1986; Kratzer, 1989). If there is no Incremental Theme argument, quantification is directed at the event variable alone; quantification is undefined, if there is neither. The hypothesis builds on Partee's (1991a, 1995) distinction between "syntactic" A-quantifiers (VP- or S-operators) and "lexical" A-quantifiers (V-operators) and presupposes that the denotations of nominal and verbal predicates have a lattice structure of the type proposed by Link (1983, 1987) and Bach (1986). It also builds on the telicity account proposed by Hinrichs (1985), Krifka (1986, 1992) and Dowty (1988, 1991) whose central part is the homomorphic mapping between the denotations of the Incremental Theme argument and the relevant episodic predicate.

Although I focus on lexical quantifiers that function as V-operators in Czech, the results of this study can be applied to other Slavic languages. It is yet to be seen how the conclusions that I reach about Czech will fare when tested against the data from typologically unrelated languages. (Preliminary investigations strongly suggest that my conclusions seem to be applicable to such languages as Hindi, Japanese and Mandarin Chinese.)

2 Background and data

Morphosyntactic means for the expression of quantification in natural languages fall into two broad types: D-quantification and A-quantification (cf. Partee, Bach, Kratzer, 1987; Bach, et al., (eds.), 1995). Syntactically, D-quantifiers (*every, most*) form a constituent with a projection of the lexical category N. A-quantifiers form a constituent with some projection of V, these are sentence adverbs ("adverbs of quantification", such as *usually, always, in most cases*; cf. Lewis,1975), "floated" quantifiers (*both, all, each*), auxiliaries, verb affixes, and various argument-structure adjusters. "Lexical" quantification, in the sense of Partee (1991a,1995), is a type of A-quantification, "where an operator with some quantificational force (and perhaps further content as well) is applied directly to a verb or other predicate at a lexical level, with (potentially) morphological, syntactic, and semantic effects on the argument structure of the predicate" (Partee, 1995:559). "Lexical" quantification is selective, directed at a particular argument or particular arguments. By contrast, paradigmatic cases of "syntactic" A-quantification with VP- or S-operators are characterized by unselective quantifiers (but see Chierchia, 1988, 1991, for a differing point of view) and a syntactic (or topic/focus) basis for determining what is quantified over.

Quantifiers as morphological operators on verbs can be found in a number of typologically unrelated languages, most notably in Australian aboriginal languages, such as Warlpiri (Hale, 1989; Bittner and Hale, 1995), Mayali (Evans, 1995), Gurindji (McConvell, 1983), in American Sign Language (Petronio, 1995), and in Slavic languages (Partee, 1991a, 1995; Filip, 1992, 1993). One of their striking and puzzling properties is the apparent great flexibility in the selection of the noun phrase(s) that provide the variable(s) they quantify over. The main goal of this paper is to shed some light on this problem.

In the next three sections I will introduce Czech data in which common noun phrases derive their quantificational force, and also a strong (definite) interpretation, from verb morphology. I will show that semantic

effects of verb morphology on common noun phrases have two sources:

        aspectual semantics of a given verb root or stem, and

        idiosyncratic lexical semantic properties of verb affixes that serve to derive perfective and imperfective verb stems.

2.1 Measure and number quantifiers

The prefix *na-* derives a perfective verb from an imperfective one. At the same time it can restrict the meaning of the derivational base with additional information of the sort traditionally seen as adverbial (cf. Petr, 1986, Vol. I:396). In one of its uses, the prefix *na-* can be viewed as having two distinct, but related, functions as a modifier and a quantifier. As a modifier it adds a further specification to the identity of the event by conveying the notion of a sufficient, relatively or an excessively high degree on some evaluation scale that measures time or effort that the Agent spent or Agent's satisfaction with its involvement in the event. (In what follows I will use the superscripts "I" and "P" to indicate imperfective and perfective verbs, respectively. Verb affixes that are of particular interest will be written in capital letters.)

(1)a.		To	jsem		se	ale	(hodně/*trochu)	NAběhal^P!
		it	AUX.1SG		REFL	but	(a lot/*a little)	PREF.run.PAST

'Boy, did I run a lot!' / 'Boy, did I spend a lot of time running around!'

(1)b.		Hodně/Trochu	jsem		běhal^I.
		a lot/a little	AUX.1SG		run.PAST

'I ran a lot / a little.'

If (1a) has a single event interpretation, the semantic contribution of the prefix *na-* can be compared to that of degree adverbials like <u>hodně</u> 'a lot'. That this adverbial meaning is indeed attributable to the prefix can be shown by the fact that the prefixed *na-*verb can be modified with <u>hodně</u> 'a lot' but not with trochu 'a little'. However, if the prefix *na-* is absent, as in the imperfective example (1b), any degree adverbial can modify the denoted event. The prefix *na-* can also function as a quantifier that describes pluralities of events, meaning approximately 'repeatedly', 'often', as in (2) (cf. Petr, 1986, Vol. I:396).

(2)	To	se	ale	NAběhal^P	po úřadech	/ *po úřadu!
	it	REFL	but	PREF.run.PAST	on office.PL.LOC	/ *on office.SG.LOC

'Boy, how many times did he have to go to all those various offices!'

Most importantly, the prefix *na-* can be used as a *quantifier* over individuals (3):

(3)	Petr	nám	NAvyprávěl^P	příhody	ze svých cest.
	Peter	us.PL.DAT	PREF.tell.PAST	adventure.PL.ACC	from his travels

'Peter told us about his many travel adventures.'

Although the plural direct object noun phrase <u>příhody</u> 'adventures','stories' in (3) is undetermined, it is interpreted as quantified, meaning approximately 'many adventures/stories'. Since (3) does not contain any other overt quantificational element apart from that incorporated in the verb, in the prefix *na-* in particular, the undetermined direct object noun phrase must derive its quantificational force from verb morphology. The basic extension of the prefix *na-* is here the set of groups with at least *n* members each, where *n* qualifies as a large number by some contextually relevant standard. (In traditional grammars, such as Petr (1986, Vol. 1: 396), this use of *na-* is characterized as 'to amass or accumulate something gradually, part by part, by creating or acquiring it. The denoted quantity of stuff or individuals is typically large or sufficient, which is associated with a positive evaluation'.) For mnemonic purposes I will call this use of the prefix *na-* 'accumulative'. If this prefix is absent, as in the imperfective example (4), or replaced by some other prefix on the same verb root meaning 'to tell', for instance the prefix *do-,* as in (5), the quantificational force of 'many' or 'a lot' is absent as well:

(4)	Petr	nám	vyprávěl[I]	příhody	ze svých cest.
	Peter	us.PL.DAT	tell.PAST	adventure.PL.ACC	from his travels

'Peter told / was telling us about his many travel adventures.'

(5)	Petr	nám	DOvyprávěl[P]	příhody	ze svých cest.
	Peter	us.PL.DAT	PREF.tell.PAST	adventure.PL.ACC	from his travels

'Peter finished telling us about (all) his travel adventures.'

The quantificational contribution of the accumulative prefix *na-* is evident in the constraints the prefix imposes on quantifiers and numerals that occur within noun phrases in its scope. It is compatible with expressions of a relatively high number, measure or quantity, such as adverbial quantifiers mnoho and hodně 'a lot (of)', 'many', as in (6), but it is incompatible with expressions of a relatively small number, measure or quantity, such as the cardinal numeral dvě 'two' or the adverbial quantifier málo 'a few', as in (7). By contrast, there are no such constraints on the occurrence of quantifiers in sentences without the accumulative prefix *na-*, as is shown in (8) and (9), which correspond to (4) and (5), respectively:

(6)	Petr	nám	NAvyprávěl[P]	mnoho/hodně	příhod.
	Peter	us.PL.DAT	PREF.tell.PAST	many/a lot of	story.PL.GEN

'Peter told us many / a lot of stories.'

(7)	Petr	nám	NAvyprávěl[P]	*dvě	příhody	/ ??málo	příhod.
	Peter	us.PL.DAT	PREF.tell.PAST	*two	story.PL.GEN	/ ??a few	story.PL.GEN

'Peter told us two / a few stories.'

(8)	Petr	nám	vyprávěl[I]	dvě	příhody	/ jen málo	příhod.
	Peter	us.PL.DAT	tell.PAST	two	story.PL.GEN	/ only a few	story.PL.GEN

'Peter told / was telling us two stories / only a few stories.'

(9)	Petr	nám	DOvyprávěl[P]	dvě	příhody	/ jen málo	příhod.
	Peter	us.PL.DAT	PREF.tell.PAST	two	story.PL.GEN	/ only a few	story.PL.GEN

'Peter finished telling us two stories / only a few stories.'

2.2 Proportion (exhaustiveness, totality) and definiteness

In traditional grammars and linguistics theories, perfective verbs are characterized as describing situations in their entirety, or as completed. Imperfective verbs are viewed as unmarked in these two respects. This is related to the observation that perfective predicates are often associated with the meaning of 'totality' or 'exhaustiveness' over the domain of entities specified by one of their nominal arguments, whereas imperfective predicates are often, though not necessarily always, associated with the meaning of 'partitivity' (partial effect, partial affectedness, and the like). For example, the speaker of (10b) is committed to the proposition that the event (necessarily) ended when the whole apple was consumed. This does not necessarily hold for (10a), which on its own does not indicate whether the whole apple or a part of it was eaten.

(10)a.	Pavel	jedl[I]	jablko.
	Paul	eat.PAST	apple.SG.ACC

'Paul ate an/the/some apple.' / 'Paul was eating an/the/some apple.'

(10)b.	Pavel	Snědl[P]	jablko.
	Paul	PREF.eat.PAST	apple.SG.ACC

'Paul ate (up) the (whole) apple.' / 'Paul ate an apple/a whole apple.'

'Exhaustiveness over some domain' or 'totality' are quantificational notions. If we assume that they are components of meaning of the universal quantifier 'all' (cf. Link, 1983:169; Partee, 1995:573), the perfective aspect can be viewed as a kind of universal quantifier over the relevant individual variable. With undetermined mass and plural noun phrases in the scope of perfective aspect, the quantificational meaning of **totality** is accompanied by the **uniqueness presupposition**, as (11a) and (12a) show. In its most natural, single event, interpretation (12a) means that some contextually specified, possibly conventional, portion of wine was completely consumed. Similarly, (11a) is true if there was a unique set of rolls in the domain of discourse and all of them were baked by Peter. In short, 'totality' and 'uniqueness' together here amount to the meaning comparable to 'all the' in English.

(11)a.   Petr   Upekl^P housky.
               Peter   PREF.bake.PAST   roll.PL.ACC
               'Peter baked (all) the rolls.'

(11)b.   Petr   pekl^I housky.
               Peter   bake.PAST   roll.PL.ACC
               'Peter baked/was baking (some/the) rolls.'

(12)a.   VYpil^P víno.
               PREF.drink.PAST   wine.SG.ACC
               'He drank up (all) the wine.'

(12)b.   Pil^I víno.
               drink.PAST   wine.SG.ACC
               'He was drinking (the/some) wine.' / 'He drank (the/some) wine.'

        The undetermined mass and plural direct object noun phrases ***must*** have a strong/definite interpretation in the scope of perfective aspect in (11a) and (12a), whereas in the scope of imperfective aspect, in (11b) and (12b), they may have a strong/**definite** or a weak/**indefinite** interpretation. (See Milsark, 1974; Barwise and Cooper, 1981; Heim, 1987, for a discussion of the distinction 'strong/definite vs. weak/indefinite'.) In addition, if (11b) and (12b) are used progressively, 'be in the process of baking', 'be in the process of drinking', their direct object noun phrases have a **partitive** interpretation: 'bake only some rolls, not all of them' and 'drink only some wine, not all of it.' The imperfective aspect can be then viewed as functioning as a kind of partitive quantifier (comparable to the unstressed determiner quantifier 'some' in English) over the individual variable in its scope.
        Judgments about the (in)definiteness of undetermined common noun phrases in Slavic languages are delicate and depend on a number of syntactic, semantic and pragmatic factors (e.g., Topic-Focus Articulation). The above examples show that we must also include verb aspect among these factors. The most compelling examples involve a direct contrast of simple sentences that minimally differ in verb aspect marked on their main verbs, such as those in (11) and (12). In particular, the totality and uniqueness interpretation of undetermined mass and plural direct object noun phrases must be the effect of the perfective aspect. This observation is significant in the light of the fact that Czech, like most other Slavic languages, has no overt articles, although it has a full set of determiners. In languages that have an *overt definite article*, its use is *obligatory* in the direct object noun phrase in sentences that correspond to (11a) and (12a):

(13)   Toj   izpi^P *kafe   / kafeto.   **Bulgarian**
         he.NOM   PREF.drink.PAST   *coffee.SG.ACC   / coffee.DF.SG.ACC
         'He drank up (all) the coffee.'
(14)   Er trank *Wein / den Wein aus.   (single event)   **German**
(15)   He drank *wine / the wine up.   (single event)   Hopper and Thompson (1980:276)
(16)   I ate up the sandwich / ?a sandwich / a sandwich that somebody left behind.

2.3 Distributivity
        (17a) has a distributive interpretation induced by the prefix *po-*. (17a) can be appropriately uttered in a situation in which all the cups broke in a successive fashion, either individually or in individual groups. (17a)

disallows a collective interpretation. For example, it would be inappropriate in a situation in which all the cups broke at the same time. By contrast (17b) and (17c) allow for a collective or a distributive interpretation. The contrast between (17a) with the prefix *po-* and (17b)/(17c) without this prefix shows that the meaning components of distributivity and successivity are the effect of the prefix *po-*. The comparison of (17a) and (17b), which are perfective, with the imperfective sentence (17c) shows that the totality and also the definite reading of the undetermined plural direct object noun phrases in (17a) and (17b) must be due to the perfective verb. In (17c) the object 'coconuts' does not necessarily refer to some referentially specific totality of coconuts.

(17)a.   Jana   POrozbíjela^P (*najednou)   šálky   v myčce.

              Jane   PREF.break.PAST   (*all at once)   cup.PL.ACC   in dishwasher
              'Jane broke (all) the cups in the dishwasher.' (gradually, each (group) after the other)
(17)b.   Jana   rozbila^P šálky   v myčce.

              Jane   break.PAST   cup.PL.ACC   in dishwasher
              'Jane broke (all) the cups in the dishwasher.'
(17)c.   Jana   rozbíjela^I kokosové ořechy   na malé kousky.

              Jane   break.IPF.PAST coconut.PL.ACC   into small pieces
              'Jane was breaking / broke (some/the) coconuts into small pieces.'

        In so far as the prefix *po-* enforces the distributive interpretation, it is comparable to the distributive determiner každý 'each', 'every'. However, the prefix differs from the determiner in two respects: first, it carries the adverbial temporal meaning 'successively', 'at separate times', 'one (group) after another', and second, it does not on its own entail universality. Notice that the distributive prefix *po-* occurs in secondary imperfective verbs in sentences with a progressive (partitive) reading without giving rise to contradiction:

(18)   Pošt'ák   POzamykával^I schránky.

            postman.SG.NOM   PREF.lock.SUFF.PAST mailbox.PL.ACC
            progressive: 'The postman was locking (some/the) mailboxes.' (gradually, one after the other)

2.4 Properties of lexical quantifiers in Czech

        Lexical quantification induced by verb morphology in Slavic languages is distinguished by four important properties. First, it is underlined selective, directed at a particular argument or particular arguments. In (19), for instance, the accumulative prefix *na-* unambiguously targets only the variable introduced by the direct object housky 'rolls'. It does not here function as a modifier or a quantifier over the event argument, that is, (19) does not mean 'The bakers spent a lot of time, energy, etc. baking rolls'; 'The bakers repeatedly, often baked rolls' or 'There were many baking events such that ...'. Nor can the prefix *na-* function as a quantifier over the individual variable supplied by the subject or the variables introduced by both the subject and object, that is, (19) cannot mean 'Many bakers baked rolls' or 'Many bakers baked many rolls'.

(19)   Pekaři   NApekli^P housky.
            baker.PL.NOM   PREF.bake.PAST   roll.PL.ACC
            'Bakers baked a lot of / a large batch of / quite a few rolls.'

The selectiveness sets lexical V-operators apart from the paradigm cases of A-quantification in English, namely adverbs of quantification (cf. Partee et al., 1987; also Lewis, 1975; Kamp, 1981; Heim, 1982), and also from A-quantifiers in such languages as Straits Salish, which are taken to be unselective (Jelinek, 1988, 1995):

(20)   mək'^{w}= ł   w'   ṉa-t   tsə   sčenx^w **Straits Salish**

            all=1plu   LINK   eat-TR   DET   be.fish
            'We ate all the fish/We all ate fish/We all ate all the fish/We ate the fish up completely'.

Second, the impact of lexical V-operators as quantifiers in Slavic languages is limited to the <u>local</u> domain of a given verbal predicate. It mainly concerns variables introduced by obligatory arguments: subject (21) and direct object (22). (22a) entails (22b), namely that the referent of the direct object 'letters', some specific set in the discourse, was completely written in ink. (22a) cannot mean that the Agent used up all the ink to write the letters. Moreover, the optional Instrumental argument <u>inkoustem</u> (ink.SG.INSTR) cannot be modified with 'all' (see (22c)). In order to express that all the ink was used up in letter writing, 'ink' must be made accessible to quantification by using a different verb, such as the prefixed <u>VYpsat</u>(P) 'to use completely up by writing' that "promotes" the optional complement 'ink' of the simplex <u>psát</u>(I) 'to write' to the direct object, as (22d) shows.

(21)   V polovině 19. století   NApřijíždělize^P do Kalifornie   zlatokopci.
          in middle 19th century   PREF.arrive.PAST   to California   goldminer.PL.NOM
          'A lot of / Many goldminers came to California in the middle of the 19th century.'

(22)a.   NApsal^P dopisy   inkoustem.
               PREF.write.PAST   letter.PL.ACC   ink.SG.INSTR
               'He wrote (all) the letters in ink.'

(22)b.   NApsal^P VŠECHNY   dopisy   inkoustem.
               PREF.write.PAST   all.PL.ACC   letter.PL.ACC   ink.SG.INSTR
               'He wrote all the letters in ink.'

(22)c.   NApsal^P dopisy   ?*VŠÍM   inkoustem.
               PREF.wirte.PAST   letter.PL.ACC   ?*all.SG.INSTR   ink.SG.INSTR
               'He wrote the letters with all the ink.'

(22)d.   VYpsal^P na dopisech   VŠECHEN   inkoust.
               PREF.write.PAST   on letters   all.SG.ACC   ink.SG.ACC
               'He used up all the ink to write the letters.'

Notice that in (2) the prefix *na-* requires the optional prepositional object be in the plural (although it does not require that it have a holistic interpretation).   Hence, in some cases the quantificational effects of verb morphology may concern optional arguments.

Third, the impact of lexical V-operators on nominal arguments depends on the <u>lexical semantics of the main verb</u> to which they are applied. The undetermined direct object noun phrases in (23a) and (23b) do not seem to differ in their quantificational properties and (in)definiteness potential. Crucially, (23b) shows that ***not all*** the perfective verbs are correlated with the definite and holistic interpretation of direct objects. This has not been observed at all or emphasized enough in the occasional comments on this topic (Wierzbicka, 1967; Forsyth, 1970; Chvany, 1983; and others).

(23)a.   Slyšel^I hlasy   na chodbě.
               hear.PAST   voice.PL.ACC   on corridor
               'He heard (some) voices in the corridor.'
               (but not: 'He heard some but not all the voices in the corridor.')

(23)b.   Uslyšel^P hlasy   na chodbě.
               PREF.hear.PAST   voice.PL.ACC   on corridor

               'He (suddenly) heard (some) voices in the corridor.'   (but not: 'He heard all the voices ...)

Fourth, the perfective aspect enforces the definite interpretation only on certain types of noun phrases[1] . <u>Singular common noun phrases</u> (see (10b)) need not and <u>quantified noun phrases</u> do not often have a definite

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[1] The accumulative prefix *na-* tends to preempt the definite (strong) interpretation of undetermined mass and plural direct object noun phrases in perfective sentences. The Incremental Theme nominal in its scope tends to have the weak (indefinite) reading, approximately meaning 'a large group', rather than the strong (definite) reading 'the large group'.

interpretation in the scope of perfective aspect, although they may have a totality or an all-exhaustive interpretation induced by the perfective aspect.

In the rest of this paper I will address the following questions: Given that A-quantifiers expressed as morphological V-operators in Czech are selective binders, which arguments will give us the individual variable to quantify over? What is the role of lexical semantics of verbal predicates in the selection of the variable to quantify over?

3 Proposal
3.1 Theoretical background and previous relevant work
3.1.1 'Count-mass' and 'telic-atelic'

Examples with lexical V-operators as quantifiers over nominal arguments belong to one of the three kinds of data that manifest connections and interactions between the semantics of verbal and nominal predicates. Such data primarily concern the proportion: telic : atelic :: count : mass. (See also Bach, 1986:5.). First, Mourelatos (1978, 1981) observes that atelic predicates (*Max ran yesterday*) have derived nominals (gerunds or deverbative nouns with suffixes like *-ion, -ment, -al, -ure*) that behave like mass nouns (*There was (some) running by Max yesterday*), while telic predicates (*Vesuvius erupted three times*) have nominals that behave like count nouns (*There were three eruptions of Vesuvius*).

Second, there is a number of analogies between the linguistic structuring of space (i.e., spatial parts of individuals) and time (i.e., temporal parts of situations) by means of nominal and verbal predicates, respectively[1]. For example, the mass predicate *wine* and the plural predicate *apples* are **cumulative** (cf. Quine, 1960:91), since a quantity of wine combined with another quantity of wine is still wine; adding two sums of apples amounts to a sum of apples. The reason is that mass predicates like *wine* identify substances without regard to any boundaries. Similarly, **atelic** verbal predicates, processes (*run*) and states (*know*), denote unbounded situations and are cumulative: Two or more situations denoted by an atelic sentence, such as *John drank beer* (process) or *John was tipsy* (state), add up to one larger situation of the same kind, which is describable by the same atelic sentence, *John drank beer* and *John was tipsy*, respectively.

By contrast, count terms like *an/the/one apple, five apples* and measure constructions like *a glass of wine* denote clearly individuated, discrete entities. They are **quantized** (cf. Krifka, 1986) and do not pass the additivity test. The same holds for **telic** verbal predicates like *build a house* (accomplishment) and *discover a treasure* (achievement). Their semantic description involves a well-defined initial state (*take off*), definite changes of state that culminate in a well-defined final state (*build a house)*, or an instantaneous transition from one state to another (*discover a treasure*).

Third, quantificational properties of an Incremental Theme argument (cf. Dowty, 1988, 1991; Hinrichs, 1985; Krifka, 1986) determine the telic and atelic reading of complex verbal predicates, as (24) shows:

(24)a.   John drank a glass of wine ??for an hour / in an hour.   telic
(24)b.   John drank wine for an hour / *in an hour.   atelic

(25)a.   Tom liked chocolate/this book/black olives for a year / *in a year.   atelic
(25)b.   John pushed a cart/carts for an hour / *in an hour.   atelic

"Incremental Theme" covers nominal arguments that are entailed to undergo a definite change of state "in distinguishable separate stages, i.e. subevents" (Dowty 1991:568). Examples are objects of *build a house, eat a sandwich, play a sonata* and subjects of *enter, leave, melt, bloom* (cf. Dowty, 1988; 1991). Krifka explains this behavior as follows: predicates that take the Incremental Theme argument (his "Gradual Patient") entail a homomorphism from the part structure of the Incremental Theme participant into the part structure of the event, and vice versa. The homomorphism ensures that the Incremental Theme argument 'transfers its reference type' (Krifka, 1992:38) onto the complex verbal predicate and determines its telicity. A quantized Incremental Theme, such as *a glass of wine* in (24a), yields a quantized/telic complex verbal predicate (under a single event interpretation), while a

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[1] Leisi,1953; Allen, 1966:197-200; Leech,1969:141, 143-44; Taylor,1977:210-211; Mourelatos,1978:425-426, 429-30; Mourelatos, 1981; Bach,1981:67, 70; 1986: 5, 8, 14; Carlson,1981; Talmy,1978, 1985, 1986, 1988; Hinrichs,1985; Krifka, 1986; Talmy, 1986; Langacker,1987; Jackendoff,1987, 1990:27; Zucchi, 1993, among others.

cumulative Incremental Theme, such as *wine* in (24b), yields a cumulative/atelic complex verbal predicate. Krifka's and Dowty's account of telicity amounts to the claim that the different behavior of direct object noun phrases in (24) and (25) is a consequence of the lexical semantics of the main lexical verb. Although Garey (1957), Vendler (1957), Verkuyl (1972), Dowty (1972, 1979), Platzack (1979), Hinrichs (1985), and others, noticed the importance of the lexical semantics of the main lexical verb for the impact of nominal arguments on the telicity of verbal predicates, Krifka (1986, 1992) was the first to localize this impact in a particular kind of thematic role[1].

Krifka (1992:49) observes that the Czech phenomenon introduced here in section 2.2 is a converse case of the telicity phenomenon described in the previous paragraph: In Czech (and other Slavic languages) it is the verbal predicate that determines certain quantificationally pertinent properties of the Incremental Theme argument. His compositional account is designed to accommodate both phenomena, as the "transfer of reference properties works in both directions" (1992:49), from a nominal predicate onto a verbal predicate, and vice versa. From Krifka's observations we may conclude that the direction in which the relevant information is `transferred' is not a priori determined by the lexical semantics of verbs, contrary to what Dowty's (1991) characterization of homomorphic predicates seems to imply, but rather it is a function of the variation and imbalance in the formal encoding of the relevant quantificational information in the surface syntax and morphology.

3.1.2 Lattice-Theory

Krifka's and Dowty's account of telicity presupposes that nominal and verbal predicates share certain semantic properties that can be naturally described in terms of the logic of part-whole relations, or mereology and its offspring lattice-theory (Link, 1983, 1987; Bach, 1986; Hinrichs, 1985; Krifka, 1986, 1989, 1990, 1992). Their denotata, the domain of individuals, including portions of matter (cf. Link, 1983:307), and the domain of situations, events (telic predicates), states, processes (atelic predicates), are internally structured and have the algebraic structure of a complete join semi-lattice.

3.1.3 Two main types of quantificational ontology: Quantification over individuals and situations

Partee (1991b, 1995) proposes that the morphosyntactic distinction between D- and A-quantification (cf. Partee, Bach, Kratzer, 1987) is correlated with two main kinds of quantificational ontology: quantification over individuals and quantification over situations. In English, quantification over individuals is typically expressed with D-quantifiers in the noun phrase, while quantification over situations is typically expressed with A-quantifiers on the level of verbs, verb phrases or sentences. Quantification over individuals and quantification over situations "are often interchangeable from a purely truth-functional point of view (...), but with a different conceptual organization and a clustering of different typical (but not absolute) properties" (Partee, 1991b:448): cf. *Every triangle has three sides - Triangles always have three sides.*

3.2 Hypothesis

From the point of view of quantification and semantic typology, quantificational constructions in which verb morphology supplies nominal predicates with quantificational force (and related notions) illustrate the use of A-quantifiers, rather than D-quantifiers, are used to quantify over individuals. In Czech the verb root/stem and possibly also the idiosyncratic semantic properties of verb affixes (part of the verb stem) indicate what sort of quantification is involved in quantificational propositions and (undetermined) common noun phrases indicate what group the quantification is restricted to range over. Building on Partee's quantificational ontology hypothesis and Krifka-Dowty's thematically-based hypothesis regarding the interaction of nominal and verbal predicates, I propose the following hypothesis:

(26)   Lexical V-operators in Slavic languages function as lexical A-quantifiers over episodic predicates and their arguments. They bind the variable introduced by the **Incremental Theme** argument (Hinrichs, 1985; Krifka, 1986; Dowty, 1988,1991), and possibly also the event variable (Davidson, 1967; Parsons, 1986; Kratzer, 1989). If there is no Incremental Theme argument, quantification is directed at the event variable alone; if there is neither, quantification is undefined.

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[1] An alternative approach by Tenny (1987), *Aspectual Interface Hypothesis,* makes the telicity effects contingent on a particular position in the d-structure, namely on the internal direct object position.

3.3 Quantifiers as morphological operators on verbs
3.3.1 Lexical V-operators and formation of perfective and imperfective verbs

The analysis of the impact of verb morphology on nominal arguments in Slavic languages is complicated by the properties of lexical V-operators, that is, various affixes and other morphological means, used in the formation of verb forms, mainly prefixation, suffixation, change of the stem extension and suppletion. First, they do not only induce aspect shifts, but also often derive a new verb by changing the meaning of the base to which they are applied. This is often accompanied by changes in the valence and/or (morphological) case government, which may lead to changes in the grammatical function status of arguments (cf. here examples in (22))[1]. Second, although the majority of Slavic verb forms (finite verb forms and many non-finite verb forms, imperative, infinitive and certain participial forms) are clearly perfective or imperfective, there is no single neutral perfective and/or imperfective affix or morphological device that would be associated with the whole class of perfective and imperfective verbs[2]. Finally, prefixes are not inherent markers of perfectivity, because they also occur in secondary imperfective verbs (see (18)). This leads to the conclusion that Slavic perfective and imperfective categories are not inflectional, but primarily lexical-derivational categories that are partially grammaticalized (cf. Dahl, 1985; see also Spencer (1991:195) on the 'fuzziness' of the inflection-derivation distinction in the case of the Russian aspect.)

3.3.2 Lexical V-operators and the stative-episodic distinction

I propose that lexical V-operators are operators over episodic (stage-level) predicates and their arguments. This amounts to the claim that _lexical V-operators are applied to predicates that have an event argument_ (Davidson, 1967; Parsons, 1986; Kratzer, 1989) _in their argument structure_. This constraint prevents lexical V-operators from applying to individual-level stative predicates in Slavic languages. Examples are so-called *imperfectiva tantum*, such as moci(I) 'can', smět (I) 'may', mít(I) 'to have', vypadat(I) 'to look', 'to appear', and *perfectiva tantum*, such as dovést(P) 'to be able', dokázat(P) 'to be able'. Given that various lexical V-operators shift the aspect category of the predicate they are applied to, it is not suprising that the aspectual opposition is neutralized in the case of individual-level stative predicates[3].

If lexical V-operators function as quantifiers, the domain of quantification are episodic situations specified by stage-level predicates, which is the typical case according to Partee's (1991b) hypothesis about the morpho-syntactic structure and conceptual organization in the domain of A-quantification. This paper focuses on those cases in which lexical V-operators *also* quantify over individual variables introduced by nominal arguments.

3.3.3 Distribution of quantificational meanings into roots/stems and affixes

It is intriguing that the distribution of quantificational meanings into roots/stems and verb affixes manifested in Slavic languages appears to agree with the general pattern that has been observed in other, typologically unrelated languages, such as Haisla. Bach (1995:19) proposes that Haisla "[a]ffixes can encode meanings of the sort associated with adverbial quantification in English and similar languages. Meanings associated with determiners or generalized quantifiers are restricted to roots and stems" (Bach, 1995:19).

Verb roots/stems and aspect. The aspect of a given verb is determined by its root or stem. There is a natural affinity between the aspectual semantics and notions like 'totality', 'universality' (cf. Haspelmath, 1995) and

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[1] In particular, prefixation is often associated with meaning changes which are not systematic and predictable. There are two main reasons for this: (i) polysemy of prefixes; and (ii) the meaning of a given prefixed verb often does not arise compositionally from the meaning of a prefix and the root.

[2] Only certain affixes are consistently associated with imperfective verbs (e.g., the imperfectivizing suffix *-va-*) and perfective verbs (e.g., the semelfactive suffix *-nou-*).

[3] The analog of this constraint in English is the constraint that the progressive operator can only be applied to episodic predicates, those denoting temporary properties of individuals (cf. Carlson, 1977 and Bach, 1981, and others), but not to individual-level stative predicates. Similarly as inherently stative individual-level predicates in English are construed as episodic (stage-level) when they are used in progressive sentences, so in Czech individual-level stative predicates are construed as episodic when a prefix, for example, is applied to them: vlastnit (I) něco 'to own something' - přivlastnit (P) si něco 'to appropriate something'.

'partitivity', that is, quantificational notions that concern the domain of individuals and that are typically expressed by means of determiner quantifiers within noun phrases (cf. Partee, 1991a,b).

The perfective aspect is traditionally characterized as conveying the meaning of 'one-time event perceived as a single whole' (cf. Comrie, 1976; Dahl, 1985, for example). Within the structuralist markedness theory, this characterization is taken to be the single basic meaning of the perfective aspect, the marked member in the aspectual opposition. The imperfective aspect is the unmarked member, it has at least three contextually determined meanings: (i) progressive, (ii) non-progressive, and (iii) iterative or generic. (ii) comprises the use of imperfective predicates for situations viewed 'as a single whole', that is, with a function typically conveyed by perfective predicates (see (10a)).

The semantic core of the aspectual distinction, as characterized by traditional grammar, lends itself naturally to a description within the theories of mereology, or the logic of part-whole relations. (This is in the spirit of Bach (1981, 1986) who proposes that the English progressive aspect involves partitive operation in the domain of situations[1].) A perfective predicate presents a situation necessarily *holistically*, as a single whole. An imperfective predicate explicitly *allows for* the denoted situation *not* to be viewed in its entirety, and it also allows for a holistic interpretation (see (10a)). Hence, 'partitivity' applied to the Slavic imperfective aspect is to be understood as 'not necessarily proper part of'. (By contrast, 'partitivity' applied to the English progressive aspect is to be understood as 'necessarily proper part of', since the progressive explicitly excludes the boundaries at which the denoted situation can be considered as being closed, and in this sense it is marked for partitivity. See Filip, 1993, for arguments.)[2]

Cross-linguistically, perfective and imperfective categories are two cluster concepts, each characterized by a number of semantic properties. From the list of properties characterizing the perfective aspect, the most important one is the 'holistic' property, and from those characterizing the imperfective aspect 'partitivity'. These two core aspectual properties are entailed by the aspectual "prototype" of 'ongoing-process vs. result' posited by Slobin (1985). (See also Filip, 1993.)

Verb affixes. The idea that verb affixes convey various quantificational and related notions is implicit in the copious literature on 'Aktionsart' (German for 'manner of action') in traditional grammar and structural linguistics. It concerns the categorization of the semantic contribution of individual affixes to the meaning of derived verbs (cf. Maslov, 1959; Isačenko, 1960). Verb affixes often restrict the meaning carried by the derivational base with additional temporal and spatial information, that is, they shape the event structure associated with the verbal predicate to which they are applied. The spatial component is particularly prominent in the content of prefixes, because the majority of prefixes are diachronically related to prepositions and/or adverbs with locative/directional meanings. Therefore, it is not surprising that verb affixes convey a variety of notions that are associated with adverbial quantification in English. In addition, verb affixes can express traditional quantificational notions like cardinality/measure, proportion and distributivity.

3.3.4 Quantification and lexicon

The hypothesis (section 3.2) has important consequences for the relation between quantification and lexicon. It amounts to the claim that the semantic structure of sentences with lexical V-operators as quantifiers is determined by the argument structure of verbal predicates to which lexical V-operators are applied. Given that lexical V-operators are directly applied to the lexical category Verb, it should not be surprising that their domain restriction is determined by lexical factors, by the argument structure of verbal predicates. Furthermore, the verb and its arguments are in the relation of predication and given that the predication is necessarily a local relationship, this motivates the observation that the impact of lexical V-operators as quantifiers is limited to the local domain of a given verbal predicate. It mainly concerns variables introduced by obligatory arguments, subject and direct object. (But see comments on optional prepositional arguments in (2) here on p. 6).

In describing the influence of lexical V-operators on verb arguments in Czech, we may distinguish four cases:

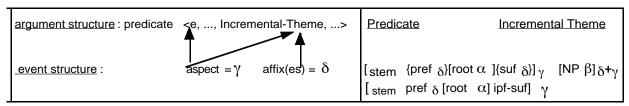[1] The idea that progressivity involves 'partitivity' can be already found in Bennett and Partee (1972/78).

[2] As Partee (class notes) points out, the fact that the Czech imperfective is unmarked for part-whole distinction has as a consequence that there is much less motivation for invoking an intensional operator (cf. Dowty, 1977, 1979) to account for the "imperfective paradox" in such sentences as *Maloval(I) obraz* 'He painted/was paiting a/the picture'.

(I)   Aspect semantics and quantification over the Incremental Theme variable

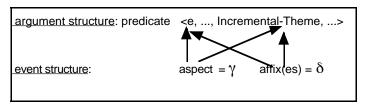|		
argument structure : predicate $<$e, ..., Incremental-Theme, ...$>$	Predicate	Incremental Theme
event structure : aspect $= \gamma$	$[_{stem}$ $[root$ α $]$ $]$ $_\gamma$ $[_{stem}$ $\{pref\}[root$ α $]\{suf\}]$ γ	$[NP$ β $]\gamma$

"γ" stands for one of the two aspectual features, 'totality' and 'partitivity'. "$[_{stem}$ $[root$ $\alpha]$ $]_\gamma$" represents the hierarchical structure of a simple imperfective verb (e.g., psát 'to write'/'to be writing') or a simple perfective verb (e.g., dát 'to give'). The structure of a derived perfective verb (e.g., Upéct 'to bake') or a derived imperfective verb (e.g., dáVAt 'to give'/'to be giving') is represented as "$[_{stem}$ $\{prefix\}[root$ $\alpha]\{suffix\}$ $]_\gamma$". The curly brackets indicate that either the prefix or the suffix must be part of the verb, but not both. In this case, affixes are used that do not (significantly) change the lexical semantics properties of derivational bases and they have no idiosyncratic quantificational force. If "β" is an undetermined mass/plural noun, the whole noun phrase is definite. (However, see fn. 1, for a possible exception.)

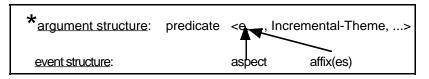(II)   Aspect+affixal semantics and quantification over the Incremental Theme variable

argument structure : predicate $<$e, ..., Incremental-Theme, ...$>$	Predicate	Incremental Theme
event structure : aspect $= \gamma$ affix(es) $= \delta$	$[_{stem}$ $\{pref_\delta\}[root$ α $]\{suf_\delta\}]$ $_\gamma$ $[_{stem}$ $pref_\delta$ $[root$ $\alpha]$ ipf-suf$]$ γ	$[NP$ $\beta]\delta + _\gamma$

"$[_{stem}$ $pref_\delta$ $[root$ $\alpha]$ ipf-suf$]_\gamma$" represents the structure of a secondary imperfective verb, such as POzamykával(I) in (18). "$[_{stem}$ $\{pref_\delta\}[root$ $\alpha]\{suf_\delta\}$ $]_\gamma$" represents the structure of perfective verbs derived by prefixation, such as NApéct (P) 'to bake (a relatively large quantity of x)' from péct (I) 'to bake/to be baking', or by suffixation, such as kápNOUt (P) 'to drip (once)' from k a p a t (I) 'to keep dripping' / 'to drip repeatedly'.

The verb stem can be thought of as a kind of complex quantifier with a 'portmanteau' semantic structure (cf. Gil, 1995): it combines partitivity or totality (aspect semantics "γ") and the idiosyncratic quantificational properties contributed by the verb affix "δ" (see the prefixed *na*-verb in (3) and (19)). The distributive prefix *po-* (as in (17a) and (18)) distributes over both the event and Incremental Theme argument. This may be schematically represented as follows:

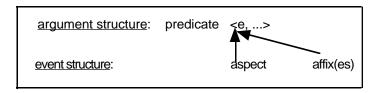|	
argument structure: predicate $<$e, ..., Incremental-Theme, ...$>$	
event structure: aspect $= \gamma$ affix(es) $= \delta$	

A distributive predicate establishes a homomorphism between the part structure of the sum situation denoted by the distributive predicate and the part structure of the Incremental Theme.

The Incremental Theme Hypothesis requires that the Incremental Theme argument *always* provides the variable to be quantified ove, if it is present in the argument structure. Hence, it excludes the following case (see comments on the interpretation of (19)):

*argument structure: predicate $<$e ..., Incremental-Theme, ...$>$	
event structure: aspect affix(es)	

(III)   If there is no Incremental Theme in the argument structure of a main episodic predicate (cf. (23)), the quantificational meanings inherent in aspect and verbal affixes target the event variable (cf. (2)). (This also covers the use of the generic suffix -va- in Czech, see Filip, 1994).

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argument structure:    predicate  <e, ...>




event structure:                  aspect        affix(es)
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(IV)   If there is no Incremental Theme and event variable in the argument structure of the main verbal predicate, no quantification takes place.

3.3.5 Informational load and informational "flow"

Krifka's and Dowty's approach to telicity is implicitly procedural (cf. formulations like 'the transfer of reference mode' in Krifka). I propose elsewhere (Filip, 1992, 1993) that such apparently directional influences can be treated in a declarative unification-based approach (cf. Shieber, 1986; Karttunen, 1988; Pollard and Sag, 1987, 1994; Fillmore and Kay, 1993). The apparent uni-directional 'transfer' or 'flow' of information arises when certain linguistic forms specify more quantificational information than others and/or specify information that takes precedence over the information specified by other linguistic forms.

The imbalance in the information encoding is particularly striking in constructions in which the nominal predicate or the verbal predicate alone is the sole bearer of all the relevant quantificational information. In English examples like (24a) *John drank a glass of wine* and (24b) *John drank wine* it is the Incremental Theme argument that encodes all the quantificational information that determines the telic or atelic interpretation of the whole sentence, whereas the homomorphic main lexical verb *drank* that heads the sentence encodes none. The homomorphic verb *drank* itself is unmarked with respect to telicity[1].

In Czech quantificational constructions examined here the verb is often derivationally complex and its Incremental Theme argument is an undetermined mass or plural noun phrase. The most compelling examples involve a perfective verb with an affix that carries a specific quantificational force (e.g., the distributive prefix *po-*) and an undetermined mass or plural noun phrase. Such quantificational constructions are not unusual in Czech. Verbs carry a heavy informational load, are often morphologically complex and contain one or more derivational affix. Since Czech has no overt article system, noun phrases often consist of only a head noun in an appropriate case and number. The verb can then be viewed as projecting information that is inherently present in the domain of verbal denotata (e.g., totality, and hence quantization (see section 3.3.6), and distributivity) onto the domain of nominal reference that lacks this information.

3.3.6 'Perfective-imperfective' and 'telic-atelic'

Which information exactly is shared between the nominal and verbal predicates in Czech, and other Slavic languages, is, however, a matter of some controversy. The controversy concerns the validity of the following equations: telic = perfective and atelic = imperfective. Since Krifka (1986, 1992) assumes that perfective predicates are telic (or quantized) and imperfective ones atelic (or cumulative), he reduces the difference between the English and Czech case to the difference in the direction in which the information about quantization and cumulativity is 'transferred'. The assumption that the interaction between the verbal and nominal predicates in English and Czech takes place via the Incremental Theme role or Gradual Patient, as Krifka (1986) proposes, is well-founded. Nevertheless, it is doubtful whether it is to be situated on the same level of linguistic description, namely telicity, and whether the Czech type of interaction is just a converse case of the English type of interaction. I argue

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[1] Dowty seems to assume that if a given verbal predicate entails the Proto-Patient entailment "incremental themehood", it is telic (Dowty 1991:567, 607). However, at the same time, he categorizes a sentence like *John drank beer* as atelic.

elsewhere (Filip, in preparation) that telicity (quantization vs. cumulativity) and aspect (part vs. whole) are two related but separate categories. Just as in the domain of objects we distinguish between quantized and cumulative objects (*olive oil, a paper on metaphysics*) and talk about parts of quantized and cumulative objects (*There is olive oil in the salad*, *This is part of a paper on metaphysics*, cf. Bach, 1986:12) or present objects as single wholes (*This is the whole paper on metaphysics*), so in the domain of situations, we distinguish between telic and atelic situations (*discover, run*) and talk about parts of telic and atelic situations (*He was writing a paper on metaphysics, He was running,*) or about situations as single wholes (*I read the whole paper on metaphysics last night;* perfective aspect in Slavic languages). Notice that there is one systematic gap: *totality + cumulativity. An entity, an object or a situation, which is viewed as a single whole must be quantized. It would be impossible to assert something about a whole object or a situation, if we did not view it as a quantized entity, that is, an entity with boundaries.

Second, I argue (Filip, in preparation) that telicity is a notional category that has no (significant) syntactic reflexes in Slavic languages. By contrast, the category aspect, perfective and imperfective, pervades the whole grammatical system. The main reason is that the syntactic phenomena that motivate the existence of the telic-atelic distinction (and the closely related unergative-unaccusative distinction) in English and other Germanic languages, correspond to syntactic phenomena that are not sensitive to telicity and/or aspect in Slavic languages, or it is unclear whether they test for telicity at all. There does not seem to be any other grammatical reflexes of the telic-atelic distinction in Slavic languages.

Let us consider the standard battery of "tests" used in English and Dutch, for example (cf. Perlmutter, 1978; Levin and Rappaport, 1986; Zaenen, 1988; Dowty, 1991): the selection of temporal adverbials, auxiliaries, the impersonal passive construction and the formation of prenominal adjectival participles. Imperfective sentences, such as <u>Maloval (I) obraz</u> [paint.PAST picture.SG.ACC], are compatible with the durative adverbial <u>hodinu</u> [hour.SG.ACC], which seems to be the closest analog of the English adverbial "for an hour", and it is incompatible with the time-span adverbial <u>za hodinu</u> [in hour.SG.ACC] 'in an hour'. What does this test tell us? As is well-known imperfective sentences (in their single event interpretation) can be used either progressively (e.g., 'He was painting a/the picture') or non-progressively (e.g., 'He painted a/the picture [and finished painting it]'). Should the above imperfective sentence in its non-progressive use, which also allows for a completive ("perfective") interpretation, be considered telic, and in its progressive use atelic? Do we want to say that the durative adverbial <u>hodinu</u> [hour.SG.ACC] is compatible with imperfective sentences only if they are used progressively, but not if they are used non-progressively? Prenominal adjectival participles can be built from passive participles of both perfective and imperfective verbs, as in <u>(na)malovaný obraz</u> 'painted picture' from <u>malovat(I) obraz</u> 'to paint a/the picture' / 'to be painting a/the picture' and <u>namalovat(P) obraz</u> 'to paint (and finish painting) a/the picture'. The base verbs need not take the Incremental Theme argument (<u>vidět(I) obraz</u> 'to see a picture' → <u>(často) viděný obraz</u> '(often) seen picture'; <u>cítit (I) nespravedlivost</u> 'to feel injustice'→ cítěná nespravedlivost 'felt injustice'); and if they do, it is irrelevant whether the Incremental Theme is quantized or cumulative (<u>psaný dopis</u> 'a/the written letter' or <u>psané dopisy</u> 'written letters'), or whether they are inherently telic (<u>ukápnout</u> [perfective/telic] 'to drip' → <u>ukápnutý inkoust</u> 'a/the dripped droplet of ink') or atelic (<u>ukapávat</u> [imperfective/atelic] 'to keep dripping' → <u>ukapávaný tuk</u> 'from roasted meat dripped fat and juices'). However, imperfective base verbs must be transitive: <u>Dopis ležel (I) na stole</u> 'The letter lay on the table' → *<u>na stole ležený dopis</u> '*on the table lied letter'. Present participles in prenominal adjectival function can be only derived from imperfective verbs, regardless of the aspect and telicity properties of base imperfective verbs. The impersonal passive construction sanctions unergative predicates, regardless of their aspect and telicity properties (<u>Tančí (I) se až do rána</u> 'There is dancing going on until morning'; <u>Hned po večeři se půjde (P) domů</u> 'Right after dinner, we'll go home'). The single most decisive requirement on the selection of the future auxiliary is the imperfectivity of the predicate, regardless whether it takes the Incremental Theme argument, and if it does, it is irrelevant whether the Incremental Theme is quantized or cumulative, and regardless of its contextually determined uses (e.g., progressive and non-progressive).

By contrast, there are a number of syntactic phenomena that are clearly sensitive to the perfective-imperfective distinction. In other words, Slavic languages "pay attention" to whether a given verbal predicate denotes a situation 'as a single whole' ('marked' perfective predicates) or only possibly a part of a situation ('unmarked' imperfective predicates), rather than whether it takes a (quantized or cumulative) Incremental Theme

argument, or whether it is inherently quantized/telic or cumulative/cumulative. Languages like English that treat one of the imperfective subcategories, namely the progressive, as marked, "pay attention" to whether a given verbal predicate explicitly excludes the (possibly inherent) boundaries of the denoted situation. In addition, there are syntactic phenomena, such as the compatibility with the durative and time-span adverbials, that are sensitive to the inherent telic or atelic property of verbal predicates or the telicity acquired via the Incremental Theme argument.

If it is correct that the telic-atelic distinction is not co-extensive with the perfective-imperfective distinction, as I propose, then the difference between these two types of interaction would not just concern the difference in the encoding of the relevant quantificational information in verbal and nominal predicates. Rather, it would also concern a more profound difference in the conceptual structure that underlies the verbal systems in English and Czech.

3.3.7 (In)Definiteness and Aspect

Given that Slavic languages like Czech have a standard determiner system that only "lacks" overt articles, one may be tempted to suggest that the definite and indefinite readings of undetermined common noun phrases are syntactically ambiguous, or semantically ambiguous, as Krifka (1986, 1992) proposes.

I propose that undetermined common noun phrases in languages that have no overt article systems are unspecified with respect to (in)definiteness, rather than being ambiguous. The definite interpretation of Incremental Theme arguments realized as undetermined plural and mass noun phrases in the scope of perfective aspect is assigned in tandem with the requirement that they be assigned a totality or an all-exhaustive interpretation in this environment. We can capture these semantic effects with the sigma operator suggested by Link (1983). Following some independently made proposals by Bittner and Hale (1995), Link's sigma 'σ' operator can be used as a type-shifting operator that combines with a common noun whose basic meaning (i.e., its preferred use) is of the predicative type <e,t> and yields an individual term of type e. Such an individual term is definite, as sigma terms are the suprema of the extensions of the predicates in question. For example, notice that (12a) cannot mean that all quantities of wine were consumed, but rather that some contextually specified totality of wine was consumed. Such affinities between the perfective semantics and notions like totalities of portions of "stuff" and of plural entities makes Link's (1983, 1987) lattice-theoretic logic of plurals and mass terms particularly suitable for the description of the data like the Czech examples discussed here (cf. Krifka, 1986, 1992). While the sigma operator together with the constraint that semantic type-shifting operations must be type range-preserving excludes proper names, pronouns, demonstratives and various indexicals, which are of the individual type e, from undergoing this type-shifting operation, the question that needs to be answered is: 'How do we prevent the sigma operator from applying to singular count noun phrases (see (10b))?'

4 Conclusion

Among the many questions that need to be addressed in the future, are the following ones: 1. How do word-internal elements interact with phrasal syntax/semantics? 2. What are the similarities and differences between quantificational notions expressed with lexical quantifiers within particular lexical items and quantificational notions expressed by D-quantifiers? 3. What is the nature of the mapping between syntax and semantics if quantification is expressed word-internally?

Glosses

The following abbreviations have been used for the sample sentence glosses:

P	perfective aspect
I	imperfective aspect
IPF	imperfective morpheme
NOM	nominative case
GEN	genitive case
DAT	dative case
ACC	accusative case
SG	singular
PL	plural
AUX	auxiliary
FEM	feminine
MASC	masculine
NEG	negation
PAST	past tense
PREF	prefix
PREP	preposition
REFL	reflexive particle

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