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The MIT Meeting 1993

edited by
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The articles in this volume represent a collection of papers that were originally presented at the Second Workshop on Formal Approaches to Slavic Linguistics.

This workshop has a relatively short history. The first FASL workshop, organized by Jindřich Toman, took place in the spring of 1992 at the University of Michigan and consisted mainly of invited presentations. Although the conference represented by the papers which appear in the present volume was held only a year later, interest in the event grew so rapidly that the organizers were unable to accept all submissions. All abstracts were reviewed by three anonymous reviewers and the organizational committee selected 17 papers based on the reviewers' recommendations.

We believe that the rapid success of the Workshop on Formal Approaches to Slavic Linguistics reflects an increased interest in this general area of linguistics. It is also our hope that the FASL workshop will become a regular annual event, and that it will contribute to creating a sense of community and mutual awareness among researchers from diverse backgrounds with similar professional interests.

We would like to thank the following people who were involved in the organization of this workshop: Marija Babyonyshev, John Bobaljik, Catherine Chvany, Orin Percus, David Pesetsky, Colin Phillips, Jindřich Toman and Kelly Wahl. Special thanks are due to the MIT Working Papers in Linguistics for a generous financial contribution, and to Colin Phillips, in particular, for his initiative in this matter. We would also like to thank Leonard Babby and Morris Halle for readily agreeing to give invited talks at the MIT FASL workshop.

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Obviation in Subjunctive Clauses and AGR - Evidence from Russian¹

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1. Introduction

In this article we address a phenomenon observed in many languages and sometimes referred to as 'the disjoint reference requirement', or 'the obviation phenomenon in subjunctive clauses'. A well-known observation is that the pronominal subject of a subjunctive clause cannot be coindexed with the matrix subject. This fact has been discussed in the literature with respect to a number of languages, specifically Romance languages, but, as we show, Russian provides an important insight into the nature of the phenomenon in question, and, as we argue, demonstrates that none of the existing accounts can fully explain the data. We propose a new theory of the disjoint reference requirement, which explains a wide range of data while making a limited number of assumptions.

A number of languages, among them Russian, does not allow the subject of the subordinate subjunctive clause to be coindexed with the subject of the matrix clause, although no such restriction is observed in indicative sentences. (1) shows the normal way of forming a subjunctive clause in Russian.

- (1) Volodja xočet čtoby Nadja pocelovala Feliksa
Volodya wants that-by Nadya kissed Felix
'Volodya wants Nadya to kiss Felix'.

¹ We thank David Pesetsky, Daniel Fox, Orin Percus, Colin Philips, Ljiljana Progovac, Luigi Rizzi, Esther Torrego, and Ken Wexler for valuable comments and suggestions.

Quantificational Morphology: A Case Study in Czech

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Introduction.

This case study focuses on the Czech suffix *-va-* that serves to derive *imperfective* verbs from simple and derived *imperfective* verbs. The most prominent use of this suffix can be found in generic sentences. I will show that Czech has two systematic means for expressing generic sentences depending on whether they convey generalizations based on necessary, permanent, unchangeable properties or generalizations based on temporary, accidental, contingent properties. The suffix *-va-* occurs on a verb only in the latter type of generic sentences. In such generic sentences it has a habitual (or iterative) meaning. The semantic description of such generic sentences will be analyzed in terms of a tripartite structure in which the suffix *-va-* functions as a quantifier that relates two predicate meanings. The quantificational analysis proposed here is superior to previous accounts in so far as it allows us to give a unified account of habitual (or iterative) sentences with the suffix *-va-*. Moreover, the quantificational analysis provides a straightforward motivation for various semantic well-formedness constraints that govern the use of the habitual suffix *-va-*.

The suffix *-va-* that serves to derive imperfective verbs from simple and derived imperfective verbs also occurs in past sentences that do not express a regularity or a habit. I suggest that the non-quantificational use of this suffix is governed by the same constraint as its quantificational use: The predicate *P* in a formula *VA (P)* must express a contingent state of affairs. I will argue that in both the quantificational and non-quantificational sentences, the speaker chooses the suffix *-va-* as a "hedging" device. Assuming that the suffix *-va-* functions as a sentential modal operator that indicates uncertainty or vagueness of the speaker with regard to the factual content of the utterance, we can motivate the exception-allowing feature that is associated with the kind of

quantification involved in habitual sentences with the suffix *-va-* as well as the 'remote' past reference signaled by past sentences with the suffix *-va-*. Thus, the missing link between quantification and a 'remote' past reference that puzzles Kučera (1981), among others, is to be sought in the intersection of modal and temporal semantics.

1. Properties of VA-Sentences and Previous Treatments

Czech has a large class of so-called habitual or iterative verbs that are derived with the suffix *-va-* from simple and derived imperfective verbs:

- (1) a. simple imperfective verb → derived imperfective VA-verb
psát 'to write' → *psávat*
- (1) b. derived imperfective verb → derived imperfective VA-verb
zapisovat 'to note', 'to record' → *zapisovávat*

The suffix *-va-* may be repeated for emphasis. This gives rise to a set of expanded verbs: *psát* 'to write' → *psávat* → *psádvát*.

The suffix *-va-* that serves to derive 'habitual' or 'iterative' imperfective verbs must be distinguished from the suffix *-va-* that serves to derive imperfective verbs from perfective verbs. To illustrate the use of the latter suffix, take, for example, *zapisovat* 'to note', 'to record' that is derived from the perfective verb *zapsat* 'to note', 'to record'. The imperfectivizing suffix *-va-* that serves to derive such secondary imperfective verbs as *zapisovat* does not carry a habitual meaning. I will henceforth use the notation 'VA' for the suffix *-va-* that *does not* have the imperfectivizing function. The verbs that contain this suffix will be called VA-verbs and the sentences involving such verbs VA-sentences. I will gloss VA-verbs with the label "HAB". This gloss will be used also for those VA-sentences that do not (necessarily) express a habit or a regularity. The derivation with the suffix VA is very productive in Czech and VA-verbs can be found in all styles of speech (cf. Kučera

1981:177). In this respect Czech differs from other Slavic languages and most notably from Russian (cf. Isačenko 1962:405-7; Comrie 1976:27; Kučera 1981:177).

The suffix *-va-* is typically found on the main verb in such generic sentences as those in (2a) to (2e) (examples are taken from Kučera 1981:182):

(2) a.

Petr mi psával.

'Peter used to write to me.'

(2) b.

V sobotu Pavel sedává v hospodě.

'On Saturday, Paul (usually) sits in the pub.'

(2) c.

Němci mluvívají špatně česky.

'Germans tend to speak Czech badly.'

(2) d.

Ruští generálové umírávají v mladém věku.

'Russian generals tend to die young.'

(2) e.

Čapek v těch letech psával romány.

'Čapek wrote (mostly) novels in those years.'

Traditionally, the basic property of sentences with VA-verbs is seen in expressing an iteration, a habit, or a regularity. The suffix VA is optional--its use is a sufficient, but not a necessary, condition for this interpretation. In an appropriate context, generic sentences in (2) can be replaced by the corresponding sentences without the suffix VA on the main verb. For example, (2a) can be replaced by (2a') which has two contextually-determined uses: it reports a habit or a particular episode.

(2) a.'

Petr mi psal.

'Peter wrote to me.' / 'Peter was writing to me.'

Kučera (1981)--who, to my knowledge, provides the only recent and systematic analysis of sentences with VA-verbs--claims that such sentences as (2a) - (2e) express *quantified states* and "this quantification may manifest itself in various ways. It may, of course, apply to the predicate verb itself [2a], in which case the sentence designates a proper habit, that is, a state that arises from repeated or recurrent activity, accomplishment, or achievement. But the quantification may also extend over the scope of a temporal adverbial in the sentence [2b], or the subject of the sentence [2c, 2d], or - more rarely - even the object of the verb [2e]" (Kučera 1981:182). Hence, according to him, it does not seem to be possible to provide a uniform analysis for such generic sentences as (2a) - (2e).

The suffix *-va-* is also applied to stative imperfective verbs that are used in sentences that normally do not denote a regularity or a habit. For example, in its most natural interpretation, (3a) asserts that the castle stood on a hill throughout a certain single uninterrupted interval.

(3) a.

Na tom kopci stával hrad.

on that hill stood-HAB-SG castle-SG-N

'There used to stand a castle on that hill.'

(3a) just like the corresponding sentence without the suffix VA, as in (3a'), does not entail that there were several situations on each of which the castle stood on a hill, with intervening subintervals when it did not.

(3) a.'

Na tom kopci stál hrad.

on that hill stood-SG castle-SG-N

'There stood a castle on that hill.'

(3a) differs from (3a') in so far as only (3a) asserts that the denoted state holds in the distant past. VA-sentences such as (3a) share the distant past reference with habitual VA-sentences in the past tense. In traditional-structuralist analyses, it is assumed that the basic property of VA-verbs is to express an iteration or a habit, and the 'remote' past tense is simply

listed as a separate meaning.¹

Kučera (1981) sharply departs from the traditional-structuralist description of habitual verbs by suggesting that "there is a distinct connection between quantification and [...] a digitalization of the past continuum" (Kučera 1981:184). However, neither he nor anybody else has succeeded in showing the nature of this putative connection and in providing an explanation for it.

Another puzzle is posed by the fact that the present tense counterparts of such sentences as (3a) are almost always unacceptable. Consider (3b):

(3) b.

??Na tom kopci stávd hrad.
 ??on that hill stands-HAB-3SG castle-SG-N
 ??'There usually stands a castle on that hill.'

And finally, we need to account for the fact that the suffix VA is unacceptable in sentences expressing exceptionless, unchangeable states of affairs:

(4) a.

??Země se točívd kolem slunce.
 ??earth-SG-N REFL revolves-HAB-3SG around-PREP sun-SG-G
 ??'The earth tends to revolve around the sun.'

(4) b.

?Země se točívala kolem slunce.
 ?earth-SG-N REFL revolved-HAB-SG around-PREP sun-SG-G
 ?'The earth tended to revolve around the sun.'

In view of these properties of VA-sentences, I will ask the following questions:

- (i) Is there a common denominator for all the distributional facts?
- (ii) Given that the suffix VA appears to extend its scope over different constituents in such sentences as (2a) - (2e) is it possible to provide a uniform analysis for it?

(iii) Is there any connection between the habitual interpretation and remote past interpretation associated with VA-sentences?

My analysis of VA-sentences in Czech builds on the account of generic sentences given in Krifka et al. 1992. In the next section, I will give a brief outline of their account.

2. General Framework

Krifka et al. point out that two distinct phenomena have been subsumed under the notion of *GENERICITY*. These are what they label *REFERENCE TO KINDS* and *CHARACTERIZING SENTENCES*. Reference to kinds can be illustrated by such sentences as **The potato** was first cultivated in South America, **Potatoes** had been introduced into Ireland by the end of the 17th century, **The Irish economy** became dependent upon **the potato**, and **Gold** is a precious metal in which the NPs in bold type are called *kind-referring* or *generic NPs*. A *characterizing sentence*, such as *Pluto chases trucks*, is said to express a habit or a regularity that arises out of a number of specific episodes that are denoted by the corresponding *PARTICULAR SENTENCE*, such as *Pluto is chasing the UPS truck*.

According to Krifka et al., the type of genericity expressed in characterizing sentences is associated with the following two properties, among others:

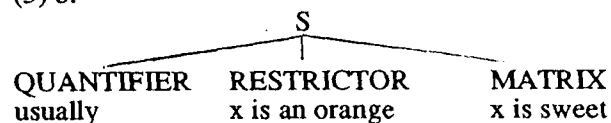
- (i) Characterizing sentences "express 'principled' generalizations over the entities of a class, and cannot capture 'accidental' facts about them" (Krifka et al., 1992, Chapter 2, p. 31). However, they do allow for 'exceptions' or 'counterexamples'. This feature clearly distinguishes them from universal statements.
- (ii) "[T]he type of genericity found in characterizing sentences is tied to sentences rather than to NPs" (Krifka et al., 1992, Chapter 2, p. 1). The characterizing reading may be enforced, for example, by various sentence adverbs (*usually, always, often, rarely, typically*), by auxiliaries (as in the English *used to* construction), and also by verbal affixes on

main verbs (e.g., the suffix VA in Czech).

In Krifka et al., characterizing sentences are analyzed in terms of a tripartite semantic representation that has the following general form: QUANTIFIER (RESTRICTOR) (MATRIX). The general principles of quantifier interpretation in terms of a tripartite structure were suggested by Lewis (1975), Kamp (1981) and Heim (1982). For example, a sentence like (5a) has the semantic representation as in (5b):

(5) a.
Oranges are usually sweet.

(5) b.



In (5b), the variable *x* introduced in the restrictor by the bare subject NP *oranges* is bound by the quantifier *usually*. Characterizing sentences which lack an overt quantificational adverb are represented with an abstract generic operator GEN, as in (6b):

(6) a. *Oranges are sweet.*

(6) b. GEN [*x*;] (*x* is an orange ; *x* is sweet)

The representation of characterizing sentences in terms of a tripartite structure captures in a straightforward way the observation that the type of genericity associated with characterizing sentences takes sentential scope, and that it should be described as being similar to such adverbs as *usually*, *typically*, *occasionally* that are not only close in meaning to the generic operator but also function as sentential adverbs.

Similar representations of generic sentences that involve dyadic operators can be also found in Lewis (1975), Kamp (1981), Kratzer

(1981), Heim (1982), Farkas and Sugioka (1983), ter Meulen (1986), Schubert and Pelletier (1987, 1989), Declerck (1988), Gerstner and Krifka (1987), Bach, Kratzer and Partee (1989), Carlson (1989), and Partee (1990; 1991a; 1991b).

3. Suggested Analysis

3. 1 The Suffix "-VA-" as a Quantifier: Tripartite Semantic Representation

If we assume that the suffix VA functions as a dyadic quantifier that relates two predicate meanings, all the disparate ways in which the quantification induced by the suffix VA appears to manifest itself can be described in a uniform way. Take a characterizing sentence such as (2c), repeated here as (7a):

(7) a.
Němci mluvívájí špatně česky.
 Germans-PL-N speak-HAB-3PL badly Czech
 'Germans tend to speak Czech badly.'

(7a) can be represented as in (7b):

(7) b.

GEN [*x*,*s*;] (*x* is a German & *s* is a situation & *x* speaks Czech in *s* ; *x* speaks Czech badly in *s*)

In (13b), the generic (characterizing) operator VA quantifies over pairs of individuals and situations, indicated by the individual variable *x* and situation variable *s*. In general, the quantifier in a tripartite structure can bind more than one variable and it binds all those variables that occur free in the restrictor clause. Other variables are bound existentially within the matrix. Following Lewis (1975), a quantification over more than one entity is labelled 'quantification over cases'.

The idea of quantification over situations goes back to Lawler (1973). The situation variable was introduced by Kratzer (1989) who draws on Carlson's distinction (1977a,b) between individual-level and

stage-level predicates² and on Davidson's (1967) event variable. Kratzer (1989) argues that the difference between these two types of predicates should be represented in terms of the difference in their argument structure. Stage-level or episodic predicates, such as *to be dancing on the lawn*, have a situation ("spatiotemporal") external argument that can function as a variable in quantificational contexts and it can be bound by various quantificational operators (adverbs, verbal affixes). Individual-level or stative predicates, such as *to be a dancer*, on the other hand, have no situation argument.

Characterizing sentences (2a), (2b), (2c) and (2e) express generalizations over situations. Such characterizing sentences whose predicates are derived from episodic verbal predicates are called *habitual* sentences. They have the following general form (cf. Krifka et al., 1992, Chapter 2, p. 16):

(8) GEN [...s;...] (restrictor [...s...]; matrix [...s...])

The situation variable may be overtly specified by a temporal adverb (*on Saturday*, as in (2b), *in those years*, as in (2e)) or by a subordinate clause. If the linguistic context does not specify the situation variable *s* (as in (2a) and (2c)), the restrictor is left underspecified and the VA operator is interpreted in such a way that it generalizes only over those situations which are in some sense relevant. The restriction to the relevant set of situations is then supplied by the context, on the basis of world knowledge and the general pragmatic principles that govern the use of habitual sentences in the discourse (cf. Spears (1974), Newton (1979), Conrad (1982), Kleiber (1985), Krifka (1987), Schubert and Pelletier (1989); Krifka et al. (1992)).

In (2d), repeated here as (9a), the operator VA has an episodic predicate in its scope that introduces a situation variable:

(9) a.
Ruští generálové umírávají v mladém věku.
 Russian generals die-HAB-3PL in-PREP young age
 'Russian generals tend to die young.'

Under the most common interpretation, the episodic predicate *umírá* 'to die' denotes an irreversible transition from one state to another to which a particular individual can be subjected at most once. Since a particular individual can die only once, the situation variable is tied to only one occasion for any given individual. Given that the indefinite subject NP 'Russian generals' in (9a) introduces an individual variable into the restrictor, the whole characterizing sentence generalizes over individuals and exactly one situation in which each given individual dies:

(9) b. VA [*x, s*]; (*x* is a Russian general & *x* dies in *s*; *x* dies young in *s*)

Given that the denoted event is non-resettable with one and the same particular individual, the whole habitual sentence is odd if the individual variable is tied to a particular individual. This is shown by the following habitual sentence:

(10)
 ??*Petr Veliký umírává v mladém věku.*
 ??Peter Great dies-HAB-3SG in-PREP young age
 ??'Peter the Great tends to die young.'

We can think of less usual situations or worlds in which the above sentence may be ascribed a plausible reading. For example, (10) can be uttered in the following context: 'In Russian movies, Peter the Great tends to die young'. In such a context (10) would be acceptable, because the indefinite NP 'Russian movies' introduces a situation variable that is associated with a number of situations. The VA operator is interpreted in such a way that it quantifies over such restricted situations, whereby each situation is associated with exactly one fictional character Peter the Great.

What is crucial then for characterizing sentences is that they "must have at least one variable to generalize over. That is, there must be at least one variable which is not explicitly tied to some particular object. If this were not the case, they would merely state that a certain particular object (as described by the restrictor) has a certain property (as

described by the **matrix**), and they can no longer express a 'generic' fact" (Krifka et al., 1992, Chapter 2, p. 17). This finding is formulated as in (11):

(11)

"An expression Q [...x;...] (restrictor [...x...]; matrix [...{x}...])

is a **generalization over x** iff it allows for models in which there is more than one value for *x* for which $\exists$ [restrictor[...x...]] is true (where $\exists$ binds all free variables except *x*)" (Krifka et al., 1992, Chapter 2, p. 17).

This general statement subsumes as a special case Kopečný's (1962) "non-actuality" property of VA-sentences. This property is manifested in the incompatibility of VA-sentences with temporal adverbials indicating specific time points. Kopečný (1962) considers the "non-actuality" property to be the salient feature of characterizing VA-sentences. Consider, for instance, the following example:

(12)

**Pavel hrával šachy včera v sedm hodin večer.*
 *Paul played-HAB-SG chess yesterday at seven o'clock evening
 *'Paul used to play chess yesterday at seven o'clock.'

(12) is ungrammatical because the situation and individual variable are tied to a particular single reference point and to a particular individual, respectively.

The quantificational analysis in terms of a tripartite structure has the advantage that it provides a unified account of the operator VA in characterizing sentences. This is an important theoretic improvement on the previous accounts, in particular on Kučera (1981). Assuming that the operator VA functions as a quantifier over "cases" set up in the restrictor, and that such "cases" involve specifications of time, location, participants, and so on, the different ways the operator VA affects the interpretation of characterizing sentences can be accounted for in terms of the differences in mapping of lexical material into the restrictor and matrix. The partition of the semantic material into these two semantic constituents depends not only on the syntactic position, as in Diesing's (1992)

Mapping Hypothesis,³ but it is also related to stress placement (Rooth 1985) and the topic-focus structure of a sentence, among other things.

This analysis also provides an explicit motivation for the restrictions on the occurrence of determiner quantifiers, adverbs of quantification and numerals in characterizing sentences. In the next two sections, I will discuss some of these constraints.

3.2 Conditions on the Restrictor

3.2.1 Constraints on the Subject NP (Strong/Weak Determiners, Mil-sark 1974)

Krifka et al. observe that characterizing sentences can contain proper names, definite singular NPs (*John/My brother drinks whiskey*), indefinite singular NPs (*A professor drinks whiskey*), quantified NPs (*Every professor drinks whiskey*), bare plural NPs (*Professors drink whiskey*) and bare mass NPs (*Milk is healthy*). On the basis of such examples, they conclude that characterizing sentences impose no limitations on the kind of NPs which occur in them, "[t]he subject (or other NP) of a characterizing sentence may be ANY TYPE OF NP" (Krifka et al, 1992, Chapter 2, p. 2). And hence the type of genericity found in characterizing sentences does not stem from any particular NP.

I propose that this conclusion must be modified, in view of the following sentences, among others:

(13) a.

Všichni Češi jsou dobří muzikanti.
 all Czechs-PL-N are-3PL good musicians
 'All (the) Czechs are good musicians.'

(13) a.' $\forall x$ (Czechs (*x*)) ; good musicians (*x*)

(13) b.

**Všichni Češi bývají dobří muzikanti.*
 *all Czechs-PL-N are-HAB-3PL good musicians
 *'All (the) Czechs are usually good musicians.'

(13) b.' *VA [x]; ($\forall x$ (Czechs (x); good musicians (x)))

These examples show that characterizing sentences that are formally marked with the suffix VA on the main verb are incompatible with universally quantified subject NPs, while sentences without this suffix *can* be universally quantified.

In (13a), the plural subject NP introduces an individual variable into the restrictor clause. Following Link (1983), I assume that plural NPs represent sum individuals, that is, they represent individuals that consist of other individuals. In (13a') the variable x ranges over such a sum individual, and it is bound by the universal quantifier 'all'. Given that the stative predicate *be good musicians* has a distributive interpretation, (13a') is true if it is true for every individual denoted by the subject NP that the individual is a good musician.

The semantic representation (13b'), which underlies (13b) is ill-formed, because the variable x is bound by the universal quantifier in the restrictor, and it cannot be at the same time bound by the quantifier VA. The formula (13b') does not contain any other free variable for the quantifier VA to bind. If we assume that there is a general prohibition against vacuous quantification in natural language (cf. Milsark (1974), Chomsky (1982), Kratzer (1989), for example), the ungrammaticality of (13b) is accounted for:

(14)

Prohibition against vacuous quantification

For every quantifier Q, there must be a variable x such that Q binds an occurrence of x in both its restrictive clause and its nuclear scope (Kratzer 1989:9).

However, we cannot simply conclude that the subject NP must never be universally quantified in characterizing sentences with the operator VA. VA-sentences license universally quantified subject NPs if they contain episodic non-distributive predicates, as is shown in the following examples:

(15) a.

Všechny tužky bývají v této zdsuvce.
all pencils-PL-N are-HAB-3PL in-PREP this drawer
'All the pencils are usually in this drawer.'

(15a) does not state a regularity about pencils, but rather it generalizes over the situations in which the pencils are in the drawer. Hence, the quantifier VA here binds the situation variable s . This can be represented as follows:

(15) a.' $\forall x$ (x are pencils $\rightarrow$ VA [s]; (s is a situation; x is in the drawer in s)) (15) a.'"

VA [s]; (s is a situation; $\forall x$ (x are pencils $\rightarrow$ x is in the drawer in s))

Similarly in (15b), the episodic predicate *přicházívát* 'to arrive' introduces the situation variable s that is bound by VA. Hence, the individual variable x can be bound by the universal quantifier:

(15) b.

V pátek přicházívají všechny děti.
on Friday come-HAB-3PL all-PL-N children-PL-N
'All the children usually come on Friday.'

Although such stative distributive predicates as 'to be good musicians' are typically not interpreted as having an open situation variable, they can be construed episodically in certain contexts. Consequently, they will be represented with the situation variable s . Such a construal often occurs with restrictive *when*-clauses, as is illustrated by (16):

(16)

Všichni Češi bývají dobří muzikanti, když jsou v zahraničí.
'All the Czechs tend to be good musicians, when they are abroad.'

In (16), VA binds the situation variable s that is introduced by the *when*-clause. The universal quantifier binds the variable x that is introduced in the restrictor by the subject NP *Czechs*. Hence, such sentences as (16) do not violate the prohibition against vacuous quantification.

Examples (13) - (16) show that universally quantified subject NPs are licensed in characterizing VA-sentences provided the operator VA quantifies over a situation variable. Since the universal quantifier binds the individual variable, the only other variable that the quantifier VA can bind is the situation variable. Universally-quantified subject NPs are introduced by NPs with strong determiner quantifiers, namely universal quantifiers like *každý* 'every', 'each', *ani jeden* 'not a single', and also with near-universal quantifiers like *většina* 'most' and *skoro všichni* 'almost all'. Characterizing VA-sentences that contain universally-quantified subject NPs and in which the quantifier VA lacks a bindable situation variable violate the prohibition against vacuous quantification. Such sentences weaken the claim, made by Krifka et al., that characterizing sentences impose no limitations on the kind of NPs that occur in them.

Weak determiner quantifiers like *some*, *many*, *a few* and numerals do not give rise to vacuous quantification in characterizing VA-sentences. Consider the following examples:

(17) a.

Jen málo knih byvá v češtině.
only a-few books-PL-G is-HAB-3SG in-PREP Czech
'Only a few books tend to be in Czech.'

(17) b.

Několik jablek mívá červenou slupku.
several apples-PL-G has-HAB-3SG red-SG-A peel-SG-A
'Several apples usually have a red peel'.

Notice that (17b) does not have a taxonomic reading, rather it has a specific reading. (17b) could be used, for example, in the following context: 'Every other week, we get a basket of apples from our neighbor. Several apples usually have a red peel.'

Characterizing sentences with weak determiner quantifiers are often odd. This holds whether or not they are formally marked with the suffix VA. Consider the following examples:

(17) c.

(?)Dva Češi jsou dobří muzikanti.
?two Czechs-PL-N are-3PL good-PL-N musicians-PL-N
'?Two Czechs are good musicians.'

(17) c.'

?Dva Češi bývají dobří muzikanti.
?two Czechs-PL-N are-HAB-3PL good-PL-N musicians-PL-N
'?Two Czechs tend to be good musicians.'

(17) d. VA [x;] (x are two Czechs ; DISTR (good musicians (x)))

The question mark in parentheses in (17c) indicates that such sentences are perfectly acceptable if they are not characterizing and if they make an assertion about two particular individuals. However, (17c) is odd if it has a characterizing interpretation. Since the main predicate in (17c') is explicitly marked as characterizing with the suffix *-va-*, (17c') always has a characterizing interpretation and hence tends to be odd. Similarly as in Krifka et al. (Krifka et al., 1992, Chapter 2, p. 20), it may be argued that Czech characterizing sentences, such as (17c'), and sentences with an optional characterizing interpretation, such as (17c), are pragmatically deviant, rather than semantically unacceptable. The reason is that they involve quantification over individuals (cf. (17d)) and the explicit numerical specification on the subject NP suggests that their interpretation depends on the number of individuals indicated by the subject NP. However, it is difficult to find a context in which the numerical specification would play a crucial role. Why should it matter for the appropriateness of (17c)--in its characterizing interpretation--and (17c') whether the number of Czechs is two, twenty, several or any other number?

Under the most usual interpretation, such sentences as (17c') do not state a generalization about two particular Czechs. Of course, we could say 'These two Czechs usually are good musicians'. However, such a characterizing statement about the musical behavior of two specific Czechs in a certain set of relevant situations would require the use of an appropriate determiner specifier in the subject NP, such as the demonstrative pronoun *tito* 'these', or some other specification.

The same holds for characterizing sentences, such as (18), which contain a numerically-specified subject NP and which are followed by a restrictive *when* clause that introduces a situation variable into the restrictor:

- (18)
?Dva Češi jsou / bývají dobří muzikanti, když jsou v zahraničí.
 'Two Czechs are / tend to be good musicians, when they are abroad.'

In contrast to (16) in which the restrictive *when*-clause sanctions the universally-quantified subject NP in the main VA-clause, (18) shows that the presence of the restrictive *when*-clause does not enhance the acceptability of a characterizing sentence with a numerically-specified subject NP. In those cases in which we come up with some rather outlandish context that makes characterizing sentences such as (18) appropriate utterances, the quantifier VA binds the situation variable *s*.

Characterizing sentences that involve non-distributive predicates and weak determiner quantifiers in their subject NPs or numerically specified subject NPs are perfectly well-formed. This is shown in (19):

- (19)
Dva kanárce jsou / bývají v jedné kleci, když je dost velká.
 Lit.: 'Two canaries are / usually are in the same cage, if it is large enough.'

Krifka et al. (1992, Chapter 2, p. 20) illustrate the same point with the following English examples:

- (20)
Two canaries can be kept in the same cage, if it is large enough.
Two magnets either attract or repel each other.
Two's company, three's a crowd.
 Krifka et al. (1992, II, p. 20-21)

On the basis of examples (17) - (19), the following conclusion can be made:

- (21)
 Characterizing sentences are often pragmatically deviant if their subject NPs are modified with weak determiner quantifiers and if they contain distributive predicates.

3. 2. 2 Constraints on Temporal Adverbials

The prohibition against vacuous quantification motivates not only the constraint on the occurrence of universally quantified subject NPs, but also the constraint on the occurrence of universal adverbs of quantification, such as *always* or *never*. This is shown in (22):

- (22) a.
 **Nikdy tam nebyvám včas.*
 *never there NEG-am-HAB-1SG on-time
 *'I am usually never there on time.'

- (22) b.
 **Vždycky tam byvám včas.*
 *always there am-HAB-1SG on-time
 *'I am usually always there on time.'

Such sentences are not well-formed, because their semantic description contains two quantifiers and just one variable. The only available variable, namely the situation variable *s*, is bound by the universal quantifier in the restrictor. Since (22) does not contain any other free variable for the quantifier VA to bind, the logical representation yields a vacuous quantification.

Cardinal count temporal adverbials (Mourelatos' (1978/1981) term), such as *three times*, and frequency adverbials, such as *several times* and *many times*, can be accommodated within the scope of the operator VA provided that they constitute sum situations over which the operator VA quantifies. In other words, it must be obvious from the context that the number of situations, indicated by such adverbials, constitutes one complex whole that is repeated an unspecified number of times. This point is illustrated by the following examples:

(23) a.

(*)*Pavel hrává třikrát šachy.*

(*)Paul plays-HAB-3SG three-times chess

(*)'Paul usually plays chess three times.'

(23) b.

Pavel hrává třikrát týdně šachy.

Paul plays-HAB-3SG three-times weekly chess

'Paul usually plays chess three times a week.'

(23) b.' VA [s;] (s is a situation ; Paul plays chess three times a week in s)

(23b) is to be understood in such a way that each relevant situation can be divided into week intervals in which Paul plays chess three times.

While a proper understanding of such sentences as (23b) requires a considerable effort, by contrast, characterizing sentences with such frequency adverbials as *usually*, *often*, *seldom* are perfectly acceptable:

(24)

Obyčejně / často / zřídka tam byvám včas.

usually / often / rarely there am-HAB-1SG on-time

'I usually / often / rarely tend to be there on time.'

The different behavior of temporal adverbials in examples (22) - (24) can be attributed to the difference among various subclasses of what Lewis (1975) calls 'adverbs of quantification'. While universal adverbs of quantification *always* and *never* correspond to standard quantifiers, cardinal count and frequency adverbials such as *three times*, *usually*, *generally*, *often*, *seldom* do not (cf. Farkas and Sugioka 1983). Adverbials that do not correspond to standard quantifiers can occur in the scope of the operator VA. By contrast adverbials corresponding to standard quantifiers cannot occur in the scope of VA. These distributional facts seem to suggest that adverbials that do not correspond to standard quantifiers do not bind a situation variable, while adverbials corresponding to standard quantifiers bind it. The presence of the latter kind of adverbials in the scope of VA gives rise to vacuous quantification, which ultimately motivates the ill-formedness of the whole sentence.

3. 2. 3 The 'Essential/Contingent' Distinction, the Suffix -VA- and Genericity

It has been observed that characterizing sentences express generalizations that allow for exceptions or counterexamples. This feature clearly distinguishes them from universal statements. For example, the proposition expressed by such a characterizing sentence as *Pluto chases trucks* is true, even if there is one occasion on which Pluto sees a truck and does not chase it. However, in this situation the corresponding universally quantified sentence *Pluto always chases trucks* will be false.

In reply to the question about where my socks are, the speaker may answer with (25)

(25)

Tvoje ponožky bývají přece ve skříni.

your socks are-HAB-3PL evidently in-PREP closet

'Your socks are usually in the closet, don't you know?'

Should it turn out that the socks are always, without exception, in the closet and the speaker later asserts (26), he is not contradicting himself.

(26)

Přesně řečeno, tvoje ponožky jsou vždycky ve skříni.

strictly speaking your socks are-3PL always in-PREP closet

'Strictly speaking, your socks are always in the closet.'

It may be suggested that the speaker chooses the operator VA as a "hedging" device, because he lacks adequate evidence for making a stronger claim or because the stronger statement is known to be false. In general, every time the operator VA is used, vagueness is a crucial part of the message. This inherent vagueness motivates the exception-allowing feature that is associated with the kind of quantification involved in VA-sentences. The possibility of exceptions or counterexamples can be denied or suspended by an explicit comment from the speaker (cf. examples (25) - (26)). Therefore, it is to be seen as an implicature of characterizing sentences, rather than an entailment.

It is well known that formulae involving universal quantification cannot capture the meaning of generic sentences (Lyons 1977, Carlson 1977, Schubert and Pelletier 1987, Krifka et al. 1992, among many others).⁴ Carlson (1977b) convincingly argues that characterizing sentences cannot be adequately represented as involving a near-universal quantifier *most* or *almost all*.⁵ Just like the generic operator GEN, VA requires that there be a sufficiently large and vague number of admissible assignments of values for the free variable(s) that it binds. It is notoriously difficult to determine what the "suitable" number of instances is over which a characterizing sentence can be said to express a generalization. What counts as "a suitable number" or "a sufficiently large number" varies from sentence to sentence, and it may depend on various contextual parameters, both linguistic and non-linguistic, including our general knowledge of the real world. An adequate description of vagueness inherent in the quantification involved in characterizing sentences is one of the main outstanding problems of research on genericity. It poses a problem in particular to a truth conditional semantic description of characterizing sentences (cf. Krifka et al., among others).

>From the fact that characterizing sentences express generalizations that allow for exceptions the following constraint follows: the predications in the scope of VA express a contingent state of affairs. This is shown by the following sentences:

(27) a.
 ??Valčík byvd ve tříčtvrtečním taktu.
 ??waltz is-HAB-3SG in-PREP three-four time
 ??'The waltz tends to be in three-four time.'

(27) b.
 Valčík byvd populární.
 waltz is-HAB-3SG popular
 'The waltz tends to be popular.'

The difference between (27a) and (27b) can be explained if we assume that it is a necessary attribute of waltzes that they are in three-four time, whereas being popular is not.

The crucial point, illustrated by the above examples, is that Czech provides two systematic means for expressing generic sentences depending on whether they express generalizations based on necessary, permanent, unchangeable properties or on temporary, accidental, contingent properties. The suffix VA occurs only in the latter type of generic sentences. This behavior may be captured by the following generalization: **The predicate *P* in a formula VA (*P*) expresses a contingent state of affairs.**⁶ If a predicate in the scope of VA is understood as expressing an exceptionless state of affairs, then it lacks a variable to be bound by the quantifier VA.

The recognition of different kinds of predications based on the distinction between what is essential and what is contingent raises a number of epistemological and metaphysical problems (cf. Lyons 1977:195-7). Nevertheless, the semantic analysis of Czech characterizing sentences and of other data in a number of languages⁷ strongly suggest that this distinction should be included in the conceptual system that motivates our ability to use and understand sentences in natural language.

Why should a predication expressing an exceptionless state of affairs in the scope of the operator VA be odd? The most compelling explanation is a pragmatic one. In the case of exceptionless states of affairs, the use of a predication *P* is more expected than the use of a characterizing predication VA(*P*), because the state of affairs expressed by the predication *P* does not allow any exceptions or counterexamples. In information terms, the predication *P* that conveys an exceptionless state of affairs is stronger than the corresponding characterizing predication VA(*P*). By Grice's maxim of quantity,⁸ the weaker, contingent predication with a characterizing verb should be used only if the stronger statement is known to be false or if the speaker does not have enough evidence for its truth.

4. Stative Predicates with the Suffix -VA-: Episodic Construal and/or "Remote Past"

In the previous section it was shown that the application of the operator VA to a given predicate *P* requires that the predicate express a

contingent property of some entity. A further supporting argument for this claim can be provided by the behavior of stative predicates with the suffix VA. Consider the following VA-sentences with stative predicates:

(28) a.
 ??Znávám Ivana dobře.
 ??know-HAB-1SG Ivan-SG-A well
 ??'I usually know Ivan well.'

(28) b.
 ?Pluto byvá inteligentní.
 ?Pluto is-HAB-3SG intelligent
 ?'Pluto tends to be intelligent.'

(28) c.
 ??Mívá Ivana ráda.
 ??has-HAB-3SG Ivan-SG-A fond-FEM
 ??'She tends to like Ivan.'

Stative predicates that denote dispositions like *to know*, *to be intelligent*, *to like* do not introduce a situation variable. Therefore, if they occur in characterizing VA-sentences, the operator VA can only quantify over an individual variable. Since in (28a) - (28c) the individual variable is tied to a particular individual, (28a) - (28c) constitute meaningful utterances only if the denoted disposition can be seen as a temporary or transient characteristic of the individual denoted by the subject NP. This presupposes that a given stative predicate can be coerced into an "episodic" construal, which, in turn, sanctions the introduction of an open situation variable. Hence, the acceptability of such characterizing sentences will depend on the subject NP as well as on the (linguistic and extralinguistic) context. For example, the episodic construal of the stative predicate *to be intelligent* may mean something like 'to act in an intelligent way'. In such a case, (28b) would mean that Pluto changes back and forth between acting in an intelligent way and not. There certainly is nothing unusual about making such an assertion, given that many dispositions vary across the different stages of a single individual. Just as one can assert something about a kind by saying something that is generally true of the objects that realize it, one can assert something about an

object by saying something that is generally true of its particular stages. The oddity of such characterizing sentences as (28a) - (28c) is attributable to the fact that the episodic construal may not easily fit our conventional ways of viewing certain dispositions or potentials of particular individuals. Even though dispositions may change in time, they do not change at the same rate as episodic situations do.

With plural subject NPs that introduce sum individuals, characterizing sentences that contain VA-predicates derived from stative distributive predicates are perfectly acceptable. Consider, for example, the following sentence:

(28) b'.
 Psi byvají inteligentní.
 dogs-PL-N are-HAB-3PL intelligent
 'Dogs tend to be intelligent.'

In (28b') the variable *x* ranges over a sum individual, and it is bound by the quantifier VA. Since the stative predicate *be intelligent* in (28b') has a distributive interpretation, (28b') is true if it is true for some "suitable number" or "a sufficiently large number" of individuals denoted by the subject NP that they are intelligent. In addition, (28b') has a less common interpretation that involves a quantification over individuals and situations. This interpretation presupposes that the stative predicate *to be intelligent* is interpreted as an episodic predicate to mean 'to manifest intelligent behavior'.

With non-distributive stative predicates, characterizing VA-sentences are acceptable if they can be interpreted as expressing generalizations over situations. Unlike with distributive stative predicates, it is irrelevant whether the subject NP is singular or plural. Consider the following examples:

(28) d.
 ??Na tom kopci stává hrad.
 ??on that hill stands-HAB-3SG castle-SG-N
 ??'There usually stands a castle on that hill.'

(28) d.'

??*Na tom kopci stávají hrady.*
 ??on that hill stand-HAB-3PL castles-PL-N
 ??'There usually stand castles on that hill.'

Both (28d) and (28d') could be appropriately uttered, for instance, on the location of a movie set. In this situation, the referent of the subject NP would be understood as a moveable entity and the predication in the scope of VA as denoting a contingent state.

Compare the corresponding past tense sentences (29a) - (29d):

(29) a.

Znával jsem Ivana dobře.
 knew-HAB-SG am-AUX-1SG Ivan-SG-A well
 'I used to know Ivan well.'

(29) b.

Pluto býval inteligentní.
 Pluto was-HAB-SG intelligent
 'Pluto used to be intelligent.'

(29) c.

Mívala Ivana ráda.
 had-HAB-SG-FEM Ivan-SG-A fond-FEM
 'She used to like Ivan.'

(29) d.

Na tom kopci stával hrad.
 on that hill stood-HAB-SG castle-SG-N
 There used to stand a castle on that hill.'

Kučera (1981) claims that such past tense sentences have *only* a non-quantificational interpretation. They assert that the denoted state holds in the distant past. They have the implicature that there exists a nonempty interval between the distant past and t for which the disposition is not asserted to be true (cf. also Kučera 1981:179-180).

Contrary to Kučera (1981), it can be assumed that for such sentences as (29a) - (29d) both the (i) quantificational and (ii) non-

quantificational interpretation is in principle possible. Just like in the present tense, so in the past tense the quantificational interpretation is often odd on the grounds that such stative predicates as *to be intelligent*, *to know*, *to like*, *to stand* (with an inanimate subject) cannot be coerced into an episodic construal. Given that in the past tense the non-quantificational interpretation is also available, it is simply the preferred one, if the episodic construal of stative predicates is not possible or highly marked.

The observation that characterizing VA-sentences in the past tense have a non-quantificational interpretation can be confirmed by the fact that they show no restrictions on the occurrence of universally quantified subject NPs and universal adverbs of quantification:

(30) a.

Všichni Češi bývali dobří muzikanti.
 all Czechs-PL-N were-HAB-3PL good musicians
 'All (the) Czechs used to be good musicians.'

(30) b.

Býval jsem tam vždycky včas.
 was-HAB-SG am-AUX-1SG there always on-time
 'I always used to be there on time.'

In such sentences as (30a) and (30b) the operator VA does not function as a quantifier. Therefore, the presence of universal quantifiers does not violate the constraint against vacuous quantification.

Is there any connection between VA-sentences that have a quantificational interpretation and those that do not? The non-quantificational interpretation is only associated with past tense VA-sentences. All the past tense VA-sentences, regardless whether they have a quantificational interpretation, assert that the denoted state of affairs holds in the distant past. This can be shown by the fact that characterizing sentences with the operator VA are incompatible with adverbials indicating recent past, such as *až do včerejška* 'until yesterday'. By contrast, they can be combined with such temporal adverbials as *když* 'then', 'once upon a time'. This is shown in (31):

(31) a.
Kdysi tajně poslouchával rádio.
 once-upon-a-time secretly listened-to-HAB-SGradio
 'Then he used to listen secretly to the radio.'

(31) b.
 ?**Až do včerejška tajně poslouchával rádio.*
 ?*until yesterday secretly listened-to-HAB-SGradio

To summarize, all VA-sentences, whether they have a quantificational interpretation or not, have the following properties: (i) they are stative; (ii) the predicate *P* in a formula *VA (P)* expresses a contingent property of some entity mentioned in a sentence; (iii) in the past tense they assert that a given property holds for a certain stage of a given individual or object in some unspecified interval in the remote past.

I propose that the essential property of the sentential operator VA is its modal function, namely to convey speaker's attitude towards the factual content of the utterance. The relevant epistemic attitude can be characterized in terms of vagueness, uncertainty and possibility. In VA-sentences that have a quantificational interpretation, vagueness motivates the exception-allowing feature that is one of the defining properties of the kind of quantification found in characterizing sentences. Quantificational VA-sentences assert that a generalization holds for some (but not necessarily all) objects or individuals that realize a certain kind or for some (but not necessarily all) stages of a given particular object or individual.

The concept of vagueness can also be extended to the temporal characteristics of the situation. First, as Kopečný (1962) observes, Czech VA-sentences are incompatible with temporal adverbials indicating a particular time point. Second, the concept of vagueness is related to the distance measured along a grammatical time line. The basic referential function of tense is to locate a situation chronologically in relation to the reference point of the utterance. A situation that holds 'now' and 'here' is usually the situation for which the speaker has the most evidence and about which s/he can make the strongest claims. By contrast, a situation that does not hold 'now' and 'here' is more likely to be a situation for which the speaker may lack adequate evidence and consequently, it is a

situation about which s/he makes weaker claims. Typically, the more remote the situation is in time from the speech event, the less can it be vouched for by the speaker. Assuming that the operator VA is a sentential modal operator and that its use in both the quantificational and non-quantificational sentences can be motivated by its inherent vagueness, it is plausible to further assume that the epistemic attitude of the speaker conveyed by VA motivates the fact that past VA-sentences indicate 'a second degree' of remoteness in temporal distance in contrast to the corresponding past sentences without the operator VA. For past VA-sentences that have a quantificational interpretation, the temporal distance can be seen as reinforcing their exception-allowing feature. In past VA-sentences that have a non-quantificational interpretation, the modal function of the operator VA is apparent in the conveyed temporal distance. If the above observations are correct, the missing link between quantification and a 'digitalization of the past continuum' that puzzles Kučera (1981) is to be sought in the intersection of modal and temporal semantics.

Conclusion.

The semantic description of sentences in terms of a tripartite structure has proven to be a powerful tool for the description of a number of quantificational phenomena in natural languages. In this paper I show that the treatment of the suffix *-va-* as a quantifier in a tripartite structure has the advantage that it provides a unified account of the seemingly disparate ways in which the quantification induced by the habitual suffix *-va-* appears to manifest itself. Moreover, the quantificational analysis provides an explicit motivation for the restrictions on the occurrence of determiner quantifiers, adverbs of quantification and numerals in generic sentences with the suffix *-va-*.

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Footnotes

1. This point of view is evident in the common practice in Slavic linguistics of labelling the suffix *-va-* that does not serve to derive secondary imperfective verbs from perfective verbs as a 'habitual suffix' and the whole class of the verbs to which it is attached as *iterative verbs*. In the Czech linguistics tradition such verbs are known as *slovesa iterativni* or *slovesa ndsobend* and in Russian the terms *mnogokratnyj* (cf. Comrie 1976:27, fn. 1); or *neopredelenno-iterativnyj* (cf. Rassudova 1984:16ff.) are used.
2. Carlson's distinction can be roughly described as a distinction between predicates that hold more or less permanently or that can be predicated atemporally of their arguments and predicates that are episodic, namely those predicates that Carlson analyzes as applying to a spatiotemporal slice of an individual. The distinction between *individuals* and their temporally restricted *stages* can be illustrated with adjectival predicates: *tall*, *intelligent*, *sane* apply to individuals and *drunk*, *present*, *sick* to their temporary manifestations.
3. According to Diesing's (1992) Mapping Hypothesis, the material from the VP is mapped into the Nuclear Scope, while the material outside the VP is mapped into the Restrictive Clause.
4. The reason is that universal quantification is too strong, because formulae involving universal quantification are falsifiable by just one counterexample. At the same time, universally quantified formulae are too weak, because they may be true accidentally.
5. Carlson (1977b), in his discussion of generics, observes that sentences such as *Dutchmen are good sailors* can be true even if the corresponding sentences with *most* or *almost all* are false. Obviously, most Dutchmen are not sailors at all, nevertheless *Dutchmen are good sailors* is true. A

similar argument can be made for Czech characterizing sentences. This finding contradicts such generalizations as the one made by Dahl (1985), for example, according to whom the use of the suffix VA indicates that "what is expressed in the sentence took place in the majority of those occasions" (Dahl 1985:97).

6. The following contrastive pairs also illustrate this point: ??*Země se točívd kolem slunce* ?? 'The earth tends to revolve around the sun' vs. *Všechno se točívd kolem ní* 'Everything tends to revolve around her'; ??*Voda mívd chemické složení H₂O* ?? 'Water usually has the chemical composition H₂O' vs. *Voda z vodovodu mívd správnou teplotu*. 'Tap water usually has the right temperature.' Notice that such examples show that the 'essential/contingent' distinction cannot be made in the lexicon of a language. A particular lexical predicate may belong to either class in different sentences. Whether a given sentence expresses an essential or a contingent property of some entity mentioned in it cannot be often viewed simply as a projection of the lexical semantic properties of the main verbal predicate, but rather depends on a number of contextual factors. The factors include the subject NP, various adjuncts and the interpreter's knowledge about the larger scenes that the sentence evokes.

7. The 'essential/contingent' distinction plays a role in the analysis of the English progressive (cf. Dowty 1979:179 and 198). Dowty illustrates its role, among others, with the following examples: *Your beer glass is sitting near the edge of the table* - *The long box is standing on end* - *The socks were lying under the bed*; *John's house sits at the top of a hill* - ??*John's house is sitting at the top of a hill*; *New Orleans lies at the mouth of the Mississippi River* - ??*New Orleans is lying at the mouth of the Mississippi River*; *The river flows through the center of town* - (?) *The river is flowing through the center of town*.

8. Grice's (1975) maxim states: (1) Make your contribution as informative as is required (for the current purposes of the exchange). And, (2) Do not make your contribution more informative than is required.

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