# Polarity Sensitivity in Inflectional Morphology*

DMITRY LEVINSON
Stanford University
(dmitryle@stanford.edu)

DRAFT - comments welcome

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## 1. Introduction

Words and phrases of different grammatical categories exhibit polarity sensitivity behaviour (van der Wouden 1996). Single-word Negative Polarity Items (NPIs) discussed in the literature include indefinites such as *any*, aspectual adverbials such as *still* and *anymore* (Israel 1995), and sentential particles like *either* and *too* (Rullman 2003). Phrases typically include NPs denoting minimal degrees, such as *lift a finger* (Schmerling 1971) or maximal degrees, like *in a million years* (Israel 2001). In all these cases the polarity sensitive items are on the word level or above: the items discussed are words, expressions or phrases.

In this paper I examine polarity sensitivity in a domain that is usually overlooked: *inflectional morphology*. While there have been occasional mentions of polarity sensitivity in some morphological categories, my goal in this paper is to provide a systematic examination of this phenomenon. An account of polarity sensitivity in morphology extends the domain of polarity sensitivity research, and helps provide a unified explanation for different morphosyntactic phenomena.

The structure of this paper is as follows. In Section 2 I derive a prediction for the direction of polarity sensitivity, based on the semantic notion of Transitivity introduced by Hopper and Thompson (1980). In the following sections I check this prediction in a number of categories: partitive/non-partitive object marking (Section 3), verbal aspect (Section 4), and verbal mood (Section 5). Section 6 concludes the paper.

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## 2. Where to look for PSIs in morphology: Transitivity

Hopper and Thompson (1980) discuss factors affecting the realization of a clause as transitive or not transitive. Some of their factors are shown in Table 1.

| **Factor** | **High transitivity** | **Low transitivity** |
|---|---|---|
| Kinesis | action | non-action (state) |
| Aspect | telic | atelic |
| Punctuality | punctual | non-punctual |
| Volitionality | volitional | non-volitional |
| Affirmation | affirmative | negative |
| Mood | realis | irrealis |
| Affectedness of the object | object totally affected | object partially affected |

Table 1. Factors contributing to transitivity (from Hopper and Thompson 1980)

Discussing the interconnection between the factors, they observe:

> …whenever an obligatory pairing of two Transitivity features occurs in the morphosyntax or semantics of a clause, the paired features are always on the same side of the high-low transitivity scale. (Hopper and Thompson 1980:254).

Some of these factors may be encoded in morphology. Partial affectedness of the object is expressed in some languages by partitive case marking (as opposed to the accusative/absolutive). Aspect can be expressed by perfective/imperfective forms. Many languages have special morphology for the irrealis mood, usually called "subjunctive" in European languages.

One of the factors affecting transitivity is presence of negation, which contributes to lower transitivity. Therefore, low transitivity morphology can become associated with negation. Assuming that the effect of negation can spread to other NPI-licensing environments, the following prediction can be derived:

(1) **Direction of polarity sensitivity in morphology**:

Low transitivity morphological markers can become Negative Polarity Items

High transitivity morphological markers can become Positive Polarity Items.

The predicted possible polarity sensitivity of the morphological categories mentioned above is therefore as follows:

| **Category** | **Positive polarity** | **Negative polarity** |
|---|---|---|
| Object marking | Accusative/absolutive | Partitive |
| Aspect | Perfective | Imperfective |
| Mood | Realis (Indicative) | Irrealis (Subjunctive) |

Table 2. Morphosyntactic categories and their expected polarity sensitivity.

This prediction is supported by the observation made in the polarity sensitivity literature (Fauconnier 1975; Israel 1996) that emphatic negative polarity items (NPI) denote minimal quantities. The reason is that a negative sentence with a minimal quantity phrase *entails* the sentences with other quantity phrases. For example, *she didn't sleep a wink* entails *she didn't sleep 5 hours*. Such a sentence expresses a strong claim, and is therefore emphatic. On the other hand, the affirmative sentence with a minimal quantity phrase is not emphatic, since the expressed claim *is entailed* by sentences with other quantity phrases. In this paper I will refer to this explanation for association of minimal quantity phrases with negation as *emphatic negation argument.*

In the rest of the paper I examine the individual categories and show that the prediction (1) is indeed borne out. I also check whether the emphatic negation argument is applicable. It is important to note that the prediction only concerns the direction of *possible* polarity sensitivity. In many cases such sensitivity would never develop in a particular language, but when it does, the direction should be as predicted.

## 3. Partitive/non-partitive case

A number of languages exhibit differential object case marking. One of the case-marking options, the partitive, signals partial affectedness of the object, while the other option (accusative or absolutive) is used when the object is fully affected.

According to the prediction in section 2, the low transitivity category is expected to become associated with negation. In this case it is the partitive, signaling partial affectedness of the object, that denotes the lower level of affectedness than the non-partitive. Therefore, the expectation is that the partitive will become associated with negation, and possibly other NPI-licensing environments, thus becoming a negative polarity item.

### 3.1. Russian

In Russian, the regular case marking for the direct object is accusative (2). In negative sentence another case marking is available: the genitive (3). This phenomenon is known as Genitive of Negation, and it exists, to various extents, in most Slavic and Baltic languages.

(2) Ja čitaju gazety / *gazet.
I read newspapers-ACC / GEN.
'I read newspapers'

(3) Ja ne čitaju gazety / gazet.
I NEG read newspapers-ACC / GEN.
'I don't read newspapers'

Genitive is also a possible marking for the subjects of negated existential sentences and some other unaccusative verbs. In such cases the verb form is always third person singular neuter:

(4) On (ne) byl doma.
He-NOM (neg) was-3.SG.M home.
'He was(n't) home'

(5) Jevo *(ne) bylo doma.
He-gen (neg) was-3.SG.N home.
'He was(n't) home'

Neidle (1988) provides a good introduction to the Russian case system and the Genitive of Negation. Some factors influencing genitive/accusative variation are listed in Timberlake (1986). Genitive/nominative variation of the subject are discussed in Babby (1980), and, recently, in a series of papers by Partee and Borschev (2004 and earlier). Quantitative studies of factors influencing such variation include Collopy (1998) and Mustajoki and Heino (1991).

As will be discussed below, the Genitive of Negation is connected to another usage of the genitive, namely the partitive. This is also widespread among the Slavic languages. For example,

(6) Ja vypil vodu.
I drank water-ACC.
'I drank (the) water'

(7) Ja vypil vody.
I drank water-GEN.
'I drank (some) water'

The common explanation for the genitive of negation is that it originated from the partitive usage of genitive (see references in Harrer-Pisarkowa (1959:fn1)). In the rest of this section I elaborate on a description given by Kuryłowicz (1971). In must be noted that since Genitive of Negation was already established in Old Slavic, there is no direct historical evidence indicating its path of grammaticalization. However, the explanation presented here is supported by similar processes in French (see section 3.5). Though the process described here occurred long before Modern Russian, examples are given using Modern Russian forms for the purpose of clarification. It can be seen that the initial stage of the explanation is actually an instance of the emphatic negation argument.

In the initial stage of the process, the partitive case carries the partitive meaning, and is used in similar environments both in affirmative and negative sentences. Suppose there is some contextually salient amount of water (for

example, a glass of water). In this case the affirmative sentence with the accusative is true iff the person drank the entire amount of water. The sentence with the partitive denotes a *weaker* claim, that the person drank some water. The affirmative sentence with the accusative entails the sentence with the partitive, but not vice versa:

(8) On vypil vodu => On vypil vody
He drank water-ACC He drank water-PRT.

(9) On vypil vody =/> On vypil vodu
He drank water-PRT He drank water-ACC.

This is reversed under negation. Consider the negative sentences:

(10) On ne vypil vodu
He NEG drank water-ACC

(11) On ne vypil vody
He NEG drank water-PRT

The negative sentence with the accusative (10) is true iff the person did not drink all the water. That is, it is true if the person didn't drink any water at all or if he drank some water, but not all the contextually salient amount. The negative sentence with the partitive denotes a *stonger* claim, that the person didn't drink any water at all. The negative sentence with the partitive entails the negative sentence with the accusative, but not vice versa:

(12) On ne vypil vody => On ne vypil vodu
He neg drank water-PRT He neg drank water-ACC.

(13) On ne vypil vodu =/> On ne vypil vody
He neg drank water-ACC He neg drank water-PRT.

Because the negative sentence with the partitive is stronger than the negative sentence with the accusative, it begins to function as emphatic negation. Sentence (10) leaves the possibility that the person did drink some water; (11) makes clear that he didn't drink any water at all. Preference for emphatic negation leads to more use of partitive in negative sentences than in the affirmative ones. This process only happens with nouns that can be used with partitive, namely mass nouns and plural count nouns.

Two processes then occur: *reanalysis* and *analogy* (Hopper and Traugott 2003:39-70). Langacker (1977:58) defined reanalysis as "change in the structure of an expression or class of expressions that does not involve any immediate or intrinsic modification of its surface manifestation". The partitive object form in

negative sentences is reanalysed as a marker of negation and loses its partitive meaning. At this stage, the marker is only used in contexts where the partitive can occur, and thus the change is not evident. Then, by *analogy*[1], the partitive marker in its use as a negation marker spreads to atomic entities, that is, singular count nouns, where it could not be used previously. Throughout these processes, overuse of emphatic negation leads to *bleaching*, and the partitive form is no longer considered emphatic, but rather becomes a part of sentential negation marking.

The partitive denotes a low quantity, so the prediction made in the beginning of this paper is supported. The first stage of the proposed explanation for the development of Genitive of Negation, before the reanalysis, is an instance of the emphatic negation argument. Therefore, the Russian Genitive of Negation can be seen as a negative polarity item, as claimed earlier by Pereltsvaig (1999)[2].

### 3.2. Finnish

Finnish also uses partitive and accusative for object case marking. Typically, three rules are given to explain the usage of partitive and accusative (Kiparsky 1998). The first concerns aspectual boundedness: if the eventuality denoted by the verb is atelic, the partitive is used (14); the accusative can only be used with a telic eventuality. Secondly, the partitive is used if an NP denotes an indeterminate quantity (15). Finally, the partitive is obligatory with negation.

(14) Ammu-i-n karhu-a / karhu-n
shoot-Pst-1Sg bear-Part / bear-Acc
'I shot at a/the bear / I shot a/the bear'

(15) saa-n karhu-j-a / karhu-t
get-1Sg bear-Pl-Part / bear-PlAcc
'I'll get (some) bears / the bears'

Kaiser (2002) noticed that in some cases the partitive can be used in questions, but not in affirmative sentences.

(16) Pekka huomasi miehen /*miestä.
Pekka-NOM noticed man-ACC/*man-PRT.
'Pekka noticed a/the man'.

(17) Huomasi-ko Pekka miehen/miestä?
Noticed-Q Pekka-NOM man-ACC/man-PRT.
'Did Pekka notice a/the man?'

[1] In terms of Harris and Campbell (1995), *extension.*
[2] See Harves (2002:81), Abels (2003) for an alternative view.

However, in addition to the environments discussed by Kaiser, there are other NPI-licensing environments allowing the partitive:

(18) Harva/*moni huomasi miestä. FEW
Few/*many noticed man-PRT.
'Few/many people noticed a/the man'.

(19) Ennenkuin/*Senjälkeen Pekka huomasi miestä… BEFORE
Before /*after Pekka noticed man-PRT
'Before/after Pekka noticed a/the man…'

These examples support Kaiser's (2002) conclusion that the Finnish partitive has an NPI behaviour.

### 3.3. Basque

Basque is an ergative language, so the object of a transitive verb and the subject of an intransitive verb have the same case marking: absolutive. In some cases the otherwise absolutive NP can have a partitive marker. The partitive is not available for ergative case NPs (Ortiz de Urbina 1985).

The partitive cannot be used with simple affirmative sentences, but it can be used in many NPI-licensing environments, such as negation, questions and antecedents of conditionsls (de Rijk 1972; Laka 1990:37; Hualde and Ortiz de Urbina 2003:124). It can also be used with epistemic modals (Hualde and Ortiz de Urbina 2003:551), similar to the Greek NPIs (Giannakidou 1998).

The following examples are from Laka (1990:37):

(20) *etxerik erosi du AFFIRMATIVE
house-PART bought has
'*she has bought any house'

(21) ez du etxerik erosi NEGATION
NEG has house-PART bought
'she hasn't bought any house'

(22) etxerik erosi du? QUESTION
house-PART bought has
'has she bought any house?'

(23) etxerik erosiko balu… CONDITIONAL
house-PART bought if-would
'If she bought any house ...'

Epistemic modals (Hualde and Ortiz de Urbina 2003:551; de Rijk 1996, ex. 23):

(24) Agian aurkituko dut ezagunik
maybe find-FUT AUX known-PART.
'Perhaps I will find someone I know'.

Existential sentences (Hualde and Ortiz de Urbina 2003:125)

(25) Bada hemen neska ederrik.
*ba*-is here girl beautiful-PART.
'There are (some) beautiful girls here.

Therefore, the partitive in Basque can be seen as a negative polarity item.

### 3.4. Partitive in presentational/existential sentences

The partitive-licensing contexts discussed above are known to be NPI-licensers: downward entailing or just nonveridical environments. There is, however, one context that does not fit this characterization. In some cases the partitive can be used for the subject of an existential/presentational sentence. This option in negative sentences in Slavic is known as "subject genitive of negation". In Croatian it is also available in positive sentences (Menac 1986:191-193). Similar usage is found in Finnish (Kiparsky 1998; Huumo 2003:462) and Basque (Hualde and Ortiz de Urbina 2003:125).

(26) Ima/evo kruh-a. (Croatian)
There-is/here breag-GEN.
'There is bread./Here's bread'.

(27) Piha-lla juokse-e poik-i-a. (Finnish)
yard-ADESSIVE run-PRES.3SG boy-PL-PART
'There are boys running in the yard.'

(28) Ba-da hemen neska eder-rik. (Basque)
*ba*-is here girl beautiful-PART.
'There are (some) beautiful girls here.

Such a usage may be surprising, since existential sentences are not known to be NPI-licensers. However, this usage can be explained by the properties of the partitive itself, unrelated to the issue of polarity sensitivity. Partitive denotes an indeterminate quantity, and is intrinsically an indefinite phrase. Existential sentences favor indefinite subjects, while non-existential sentences favor definite

subjects (Beaver, Francez and Levinson 2005). Therefore, partitive phrases are natural candidates to be used in existential sentences.

### 3.5. Negation in French: *de* and *pas*

The grammaticalization of Slavic Genitive of Negation took place before historical records, and thus direct evidence for the process is not available. However, similar phenomena which occurred independently in other languages allow us to witness the process of grammaticalization of the partitive of negation. French is one example of a language in which this process was recorded, although in this case the partitivity is expressed by means of a preposition, and not morphologically. In French, the Latin preposition *de*, originally meaning 'from', acquired possessive and partitive meaning, and also became associated with negation. The following example is from Muller (1991):

(29) *Pierre a acheté un cheval.*
Pierre has bought a horse.
'Pierre bought a horse'

(30) *Pierre n'a pas acheté de cheval/chevaux.*
Pierre neg'has neg bought of horse/horses.
'Pirrre didn't buy a horse/horses'

According to Harmer (1979; 232), "*de* was used after certain verbs, in the early language [Old French], to give a partitive value to the noun immediately following it. *Mangier de pain*, for instance, was an alternative to *mangier pain*". The partitive article became associated with negation and then spread to sentences in which it originally could not be used, such as (30).

The French word *pas* underwent a similar development, as a part of what is known as Jespersen's cycle. Originally, it meant 'a step'. Due to its denoting a minimal distance unit, it started functioning as an emphatic negator with verbs of movement. Through reanalysis it became associated with emphatic negation, and through analogy it spread to other verbs and became a part of general emphatic negation, thus losing its literal meaning (this stage in Catalan/Italian is discussed by Schwenter (2006)). Through bleaching it became part of the regular negation, as it is in Modern French.

The grammaticalization path of *de* and *pas* in French fits the description given in section 3.1. This observed pattern supports the claim that the Genitive of Negation developed in a similar fashion in Slavic languages.

### 3.6. Conclusion

In all the examined languages, the direction of dependency is as expected: the morphological category that becomes associated with negation is the partitive, denoting partial affectedness. In addition to its regular uses, denoting nominal

(and in Finnish also verbal) unboundedness, the partitive is used with negation. In Finnish and in Basque it can also be used in other known NPI-licensing environments.

The explanation for the association of the partitive with negation, made for Slavic partitive, and supported by French diachronic data, is an instance of the emphatic negation argument proposed for regular emphatic NPIs. This supports the analysis of the partitive of negation as a negative polarity item.

## 4. Imperfective/perfective aspect

Russian verbs have the category of aspect, that can be imperfective or perfective. Essentially, perfective verbs denote telic eventualities which have a natural limit, while imperfective verbs denote atelic eventualities, lacking such a limit. When referring to an activity leading to a change of state, a telic verb denotes both the activity and the change of state, while an atelic verb denotes just the activity. The perfective verbs therefore denote more action than the imperfective ones, and contribute to higher transitivity.

According to the prediction introduced in section 2, imperfective, being the low transitivity category, is expected to become a negative polarity item. While most NPI-licensing environments are not known to affect aspect marking, in two cases discussed below such sensitivity has been found.

### 4.1. Imperatives

While both perfective and imperfective occur freely in positive imperatives, the perfective is dispreferred with negation, to various degrees, in all the Slavic languages (Ivić 1958; Zenčuk 1971; Levinson 2005). In Russian, a negative command can only be expressed with the imperfective (32).

(31) Beri / Voz'mi stakan.
Take-IPFV/Take-PFV glass.
'Take the glass'.

(32) Ne beri /#voz'mi stakan.
Neg take-IPFV/take-PFV glass.
'Don't take the glass'.

Although the perfective cannot be used in negative imperatives denoting prohibitions intentional actions, it can be used in imperatives denoting unintentional actions. The following contrast demonstrates the different role of the aspectual forms:

(33) Ne razbivaj steklo.
Neg break-IMP-IPFV glass
'Don't (intentionally) break the glass'.

(34) Ne razbej steklo.
Neg break-IMP-PFV glass.
'Don't (unintentionally) break the glass'.

The imperfective form is used for intentional actions: (33) can be used if someone considers breaking the glass and the speaker wants to tell them not to perform this action. On the other hand, (34) can be said to someone who moves carelessly near the glass and might unintentionally break it. The speaker uses (34) to tell the hearer about potential negative consequences of the hearer's actions. Birjulin (1992, 8-13) introduces a formal distinction between the two kinds of negative imperatives: a *prohibitive* denotes an intentional action not to be performed, as in (33), while a *preventive* warns against an undesired unintentional consequence of other actions, as in (34). Using this terminology, the perfective can only be used in preventives, but not in prohibitives.

Bogusławski (1985) gives an explanation for the preference for imperfectives in negated imperatives. His discussion applies to verbs denoting change of state and activity leading to the change of state (accomplishments and achievements that can have an associated activity). This explanation is actually an instance of the emphatic negation argument, similar to the first stage of the development of Genitive of Negation.

Imperfective verbs denote states and activities that are not necessarily completed. Perfective verbs denote completed changes of state. Therefore, an affirmative sentence with the perfective entails the sentence with the imperfective, but not vice versa:

(35) On postroil dom => On stroil dom
He built-PFV house He built-IPFV house

(36) On stroil dom =/> On postroil dom
He built-IPFV house He built-PFV house

This is reversed under negation. The negative sentence with the imperfective entails the negative sentence with the perfective, but not vice versa:

(37) On ne stroil dom => On ne postroil dom
He neg built-IPFV house He neg built-PFV house

(38) On ne postroil dom =/> On ne stroil dom
He neg built-PFV house He neg built-IPFV house

Using the imperfective instead of the perfective makes a negative command stronger. The imperfective command prohibits not only completing of the action, the change of state, but also engaging in the activity leading to this stage. This is stronger than the perfective prohibition would be, prohibiting just the completion of the activity, while allowing the activity itself. Desire to add emphasis to imperatives leads to preferring imperfectives in negative imperatives. Overuse of the emphasis leads to the grammaticalization of imperfective as the only option in negative imperative.

This can also explain the difference between preventives and prohibitives. In the case of intentional actions, a change of state is preceded by some activity directed towards the change of state. A non-intentional change of state is not a result of an activity directed towards it, but rather it happens as a result of an activity directed towards something else. Therefore, strengthening the negative imperative by emphasizing the activity and not the change of state is only possible for intentional actions.

### 4.2. Habitual *vs.* specific

In Russian, in the past tense the aspectual choice is affected by whether the action is habitual or not. Perfective can be used with *odin raz* 'once', but not with *často* 'frequently'. This is similar to the choice of indefinite pronouns: *Čto-nibud'* 'something.NON-SPECIFIC' cannot be used with *odin raz* 'once', but can be used with *často* 'frequently'. For habitual as an NPI-licenser, see section 5.3.

(39) Ja tuda odin raz prixodil/prišol.
I there one time came.IPFV/came.PFV.
'I came there once'.

(40) Ja tuda často prixodil/*prišol.
I there frequently came.IPFV/*came.PFV.
'I frequently came there'.

(41) Ja často čto-nibud' prinosil.
I frequently something.NON-SPECIFIC brought.IPFV.
'I frequently brought something'.

(42) Ja odin raz čto-to/*čto-nibud' prinosil/prinjos.
I one time smth.SPECIFIC/*smth.NON-SPECIFIC brought.IPFV/brought.PFV.
'I brought something once'.

In these cases the perfective exhibits positive polarity sensitivity.

### 4.3. Conclusions

Influence of an NPI-licensing environment on aspectual marking was only found in two cases: negative imperatives and habitual sentences. In both cases, the direction of the dependency is as predicted.

The explanation given by Bogusławski (1985) for the restriction on perfective aspect in prohibitives is actually an instance of the emphatic negation argument. This supports the view of the imperfective aspect as a NPI. However, the restriction on the perfective in habitual sentences, demonstrated in the previous section, cannot be explained in the same way.

## 5. Realis/irrealis

The most common manifestation of polarity sensitivity in morphology can be found in the category of *reality status* (Elliott 2000). Reality status is usually marked on the verb, with *realis* and *irrealis* as possible values. The low transitivity marker is irrealis, and it is therefore expected to become a negative polarity item.

### 5.1. Indicative vs. subjunctive in subordinate clauses

In European languages, the reality status categories are traditionally called indicative and subjunctive, with subjunctive being used almost exclusively in subordinate clauses.

Nathan and Epro (1984:522) noticed that many of the constructions that trigger NPIs in English also license the subjunctive mood in Romance languages.

*French*

(43) Je crois qu'il est/*soit intelligente.
I believe that he is-IND/*is-SUBJ smart.
'I believe that he is smart'.

(44) Je ne crois pas qu' il soit intelligente.
I NEG believe that he is-SUBJ smart.
'I don't believe that he is smart'.

(45) Crois-tu qu'il soit intelligente?
Believe-you that he is-SUBJ smart.
'Do you believe that he is smart?'

(46) Comimos antes / *después que él llegara. (Spanish)
Ate-1PL before / after that he arrived-SUBJ.
'We ate before/after he arrived'.

(47) Dudo que sea francés. (Spanish)
doubt-1SG that is-3SG-SUBJ French.
'I doubt that he/she is French'.

*Italian, from Manzini (2000)*

(48) So che tu sei/*sia andato. AFFIRMATIVE
I-know that you are/are-subj gone.
'I know that you have gone'.

(49) Non sa che io sono/sia andato. NEGATIVE
NEG knows that I am/am-subj gone.
'He/she doesn't know that I've gone'.

(50) Sai che lui è/sia andato? QUESTION
know-2SG that he is/is-subj gone?
'Do you know that/if he has gone?'.

*Spanish*

(51) We ate before/*after anyone arrived.

(52) Comimos antes / *después que él llegara.
Ate-1PL before / after that he arrived-SUBJ.
'We ate before/after he arrived'.

(53) Dudo que sea francés.
doubt-1SG that is-3SG-SUBJ French.
'I doubt that he/she is French'.

*Greek*

Giannakidou (1995) claims subjunctive in Greek and Rumanian can be analyzed as a negative polarity item. It is licensed by negation (55), questions (57) and other NPI-licensing environments:

(54) nomízo *na érthi / óti tha érthi o jánis.
think-1SG SUBJ come / that FUT come the john
'I think than John will come'.

(55) dhen nomízo na érthi o jánis.
not think-1SG SUBJ come the John
'I don't think that John will come'.

(56) kséro *na éfije i maría / óti éfije i maría
know-1SG SUBJ left the maria / that left the maria
'I know that Mary left'.

(57) kséris na éfije i maría?
know-2SG SUBJ left the mary
'Do you know if Mary has left?'

*Russian*

In Russian, the subjunctive in the subordinate clause is licensed by negation in the main clause, but not by a question.

(58) Ja dumaju, čto èto tak / *čto-by èto bylo tak.
I think that this so / that-SUBJ this is.SUBJ so.
'I think that it is true'.

(59) Ja ne dumaju, čto èto tak / čto-by èto bylo tak.
I neg think that this so / that-SUBJ this is.SUBJ so.
'I don't think that it is true'.

(60) Ty dumaeš', čto èto tak /*čto-by èto bylo tak?
You think that this so / that-SUBJ this is.SUBJ so.
'Do you think that it is true?'

*Unselected Embedded Questions*

In English, a similar phenomenon can be observed, although it is expressed in syntax and not in morphology. Adger and Quer (1997, 2001) noticed the NPI-like behaviour of what they called *Unselected Embedded Questions* (UEQ).

Affirmative:

(61) I knew that/#if the bartender was happy.

Question:

(62) Did Julie know if the bartender was happy?

Negation:

(63) Julie didn't know if the bartender was happy.

*Only*:

(64) Only Julie knew if the bartender was happy.

Conditional:

(65) If they admitted if they had the keys, things would be much easier.

Adversative predicate:

(66) We refused to admit if they had the keys.

To summarize, in many languages the subjunctive becomes a negative polarity item, according to the prediction.

### 5.2. Irrealis/realis in main clauses

Unlike the European languages, many languages of the world have the realis/irrealis distinction in main clauses as well. The exact distribution of the realis/irrealis marking varies widely across languages (Mithun 1995; Bybee 1998; Elliott 2000).

Simple past and present are always realis (Palmer 2001:168), while the typical use of irrealis is to denote possible events. Other environments that can license irrealis include negation, questions, future and imperatives. Here are some examples of irrealis marking in Caddo (Caddoan – Oklahoma; Chafe 1995; Melnar 2004):

(67) sahʔ-yi=bahw-nah YES-NO QUESTION
2ND.AGENT.IRREALIS-see-PERFECT
'Have you seen him?'

(68) kúy-t'a-yi=bahw NEGATION
NEG-1ST.AGENT.IRREALIS-see
'I don't see him'

(69) kas-sa-náy=ʔaw OBLIGATION
OBLIGATIVE-3RD.AGENT.IRREALIS-sing
'He should/is supposed to sing'.

(70) hí-t'a-yi=bahw ANTECEDENT OF A CONDITIONAL
CONDITIONAL-1ST.AGENT.IRREALIS-see
'If I see it'

(71) wás-t'a-yi=bahw INFREQUENTATIVE ADVERB
INFREQUENTATIVE-1ST.AGENT.IRREALIS-see
'I seldom see it'

### 5.3. Irrealis and other NPIs: comparing the environments

*Proposed licensing conditions*

The following are the major environments licensing both irrealis and other NPIs: negation, question, antecedent of a conditional, future, imperative, desiderative, obligation, possibility.

Similar to the polarity sensitivity research, much of which is devoted to defining the environments that can license polarity items, the functional-typological research on irrealis has attempted to describe the irrealis environments. Since the connection between the NPIs and the irrealis marking in the main clause has remained unnoticed, these lines of research have been pursued separately. However, the proposed descriptions are very similar.

On the realis/irrealis distinction, Mithun (1999:173) characterizes the realis as denoting actualized situations, and irrealis as denoting situations "within the realm of thought". A similar characterization is given by Roberts (1990:367): realis refers to the real world, and irrealis refers to possible worlds.

In the polarity sensitivity literature, Giannakidou (1998 etc) proposed the criterion of *(non)veridicality*. The NPIs are said to occur only in nonveridical environments. A simplified definition of veridicality is given here:

(72) F is *veridical* just in case Fp -> p is logically valid. Otherwise, F is *nonveridical*. (Giannakidou and Zwarts 1998).

There are apparent similarities between the nonveridicality condition and the formulations given by Mithun and Roberts. Indeed, all the irrealis environments listed above are nonveridical, and do not denote actualized, or real word, situations.

*Habitual*

Some environments are problematic for the definitions above. One such environment is the *habitual*. In some languages, verbs with habitual interpretation can be marked as irrealis[3]. For examples, in Bargam (Papua New Guinea; Roberts 1990:383-384) the realis/irrealis distinction is marked on 'medial verbs' (all but the final verb in a verb chain), and habitual clauses are irrealis. The infrequentative suffix in Caddo is also used with irrealis (71).

(73) Miles-eq leh-id teq anamren aholwaq-ad in didaq tu-ugiaq.
return-SS.IR go-DS.IR then owner see-SS.SIM 3SG food PFV-give.HAB.PAST.
'When (the pig) would return and go, the owner, on seeing it, used to give it food'

Such examples pose a problem for the common definitions of irrealis, since they refer to events happening in the real world. Givón (1994:270, 322) calls the habitual "a hybrid modality". It shares some properties with typical realis (assertion), and some properties with typical irrealis (lack of specific temporal reference).

[3] A similar phenomenon exists in English: habitual past can be expressed using the modal verb *would.* For example, *When we were children, we would often play at being grown-ups*. (Roberts 1990:383).

Moreover, habituals can license NPIs. The following example is from Giannakidou (1998:134).

(74) Otan pijene o Pavlos ja ipno, ksefilize sinithos *kanena* periodhiko.
when went-3sg the Paul for sleep, browsed-3sg usually *some/any* magazine.
'When Paul went to bed, he usually browsed through a magazine'.

As noticed in section 4.2, Russian *-nibud'* indefinites exhibit a similar behavior:

(75) Pered tem, kak leč' spat', ja vsegda čital kakoj-*nibud'* žurnal.
Before that, COMP lie sleep, I always read-PAST some.NONSPEC magazine.
'Before going to bed, I always read some magazine'.

This is a counterexample to nonveridicality as a licensing condition. To save the nonveridicality condition, Giannakidou (1998:134), Giannakidou and Zwarts (1998:9) analyse (74) as non-veridical. They argue that a habitual sentence is non-veridical if there are some cases in the restriction for which the proposition in the scope does not hold. This revision the definition of nonveridicality is supported by the contrast between the grammatical (74) and the ungrammatical (76):

(76) *Otan pijene o Pavlos ja ipno, ksefilize panda *kanena* periodhiko.
when went-3sg the Paul for sleep, browsed-3sg always *some/any* magazine.
'When Paul went to bed, he always browsed through a magazine'.

According to the revised condition, (76) is nonveridical, and (74) is veridical, and this explains the difference in grammaticality. However, the contrast they show is not exhibited by the Russian *–nibud'* indefinites. Example (75) above is veridical even according to the revised condition. Therefore, this usage cannot be explained by nonveridicality.

To conclude, we have seen that habitual sentences can license NPIs and irrealis marking, violating the proposed licensing conditions.

*Emotive factives*

Another problematic usage occurs in the complements of emotive factive verbs (*glad, be surprised*). Irrealis is sometimes used in such complements, although they denote actual events. In Spanish, subjunctive can be used in the complements of emotive factives (Givón 1994:304-310; Bybee 1998:268). The admirative prefix *hús-* in Caddo, expressing surprise, is used with irrealis. This is not expected according to the usual definitions of the realis/irrealis distinction.

(77) Me alegra que sepas la verdad. (Spanish)
me pleases that know.2SG.SUBJ the truth
'I'm glad you know the truth'.

(78) hús-ba-?a=sa-yi=k'awih-sa? (Caddo)
ADMIRATIVE-1ST.BENEFICIARY.IRREALIS-name-know-PROGRESSIVE
'Surprisingly, he knows my name'

Similarly, negative polarity items can be used in the complements of emotive factives (Linebarger 1980; Kadmon and Landman 1993; von Fintel 1999), although these environments are veridical.

(79) Bill is glad/surprised that we got any tickets at all.

(80) *Bill knows that we got any tickets at all.

It is sometimes suggested that the explanation has to do with defying an expectation. Givón (1994:306-307) on subjunctive:

> If an event is *epistemically* less expected, chances are that one's emotional *valuative* reaction to it – surprise, preference, aversion – is stronger.

Giannakidou (2006: 46): the expectation in (81) is that we would not be able to get tickets.

(81) I am glad we got any tickets at all!

Nevertheless, there are no satisfactory explanations of the usage of irrealis and other NPIs in the complements of emotive factives, and such sentences continue to pose a problem for accounts of irrealis and NPI licensing.

*Bella Coola (Salishan): nominal and verbal irrealis*

The Salishan language Bella Coola (Nater 1983:123-124; Kinkade 2001:194) gives interesting evidence for the common basis of nominal NPIs and verbal irreakus. Bella Coola has a proclitic *ka*, that can be used with nouns and verbs. With verbs it meaning is future or possibility, with nouns its meaning is future or *some* (indefinite). In subordinate clauses *ka* can mean 'if'. Therefore, it combines the non-specific/irrealis meaning in both the nominal and verbal domain:

(82) ?axw ti-ka-sulh-ts
NEG DET-IRR-house-my
'I have no house, there is no house of mine'.

(83) ?anayk-ts ?ala-ka-qla
want-1SG DET-IRR-water
'I want some water'

(84) tsi-ka-cnas-ts
DET-IRR-wife-1SG.POSS
'my future wife'

(85) ka-tl’ap-ts
IRR-go-1SG.POSS
‘I will go.’

(86) ka-tl’ap-lh-ts
IRR-go-PERF-1SG.POSS
‘I would go.’

### 5.4. Realis/irrealis: conclusions

As predicted, the low transitivity marker, irrealis, is used in NPI-licensing environments in many languages. On the other hand, the emphatic negation argument does not apply to irrealis. The negative sentence with irrealis is not stronger that the negative sentence with realis. The irrealis is different from the imperfective aspect and partitive in this respect, since in those cases the explanation proposed for their development was an instance of the emphatic negation argument.

The formulations of irrealis environments in the typological literature is similar to the nonveridicality condition proposed by Giannakidou (1998) for indefinite NPIs. Occurrence of irrealis and indefinite NPIs in habitual sentences and with emotive factives constitutes a problem for licensing conditions intended to explain the distribution of both kinds of items, and provides additional evidence for the NPI-like behaviour of irrealis.

## 6. Comparison and Conclusions

Based on Hopper and Thompson’s (1980) list of factors affecting transitivity, I derived a prediction for the direction of polarity sensitivity that may develop in morphology. The prediction was tested on a number of morphological categories. In all the examined cases, the direction of polarity sensitivity is as predicted: the low transitivity morphological markers becomes Negative Polarity Items.

This was found to be the case with partitive/non-partitive object marking, with partitive becoming an NPI. The imperfective aspect marking shows sensitivity to some NPI-licensing environments. The diachronical explanations given by Kuryłowicz (1971) for the partitive of negation and by Bogusławski (1985) to the restriction of perfective in negative imperatives are both examples of the emphatic negation argument, which is used to explain regular emphatic NPIs.

The similarity between the distribution of a morphological marker and the well-studied negative polarity items is especially apparent with the category of irrealis. Similar licensing conditions have been proposed and similar counterexamples have been found for irrealis and other negative polarity items. However, the emphatic negation argument cannot be used to explain the association of irrealis with negation.

These observations extend the domain of polarity sensitivity research and provide a unifying analysis of a variety of morphosyntactic phenomena.

**References**


Beaver, David, Itamar Francez and Dmitry Levinson. 2005. Bad Subject: (Non-)Canonicality and NP Distribution in Existentials. *Semantics and Linguistic Theory* XV.

Birjulin, L.A.: 1992, 'Semantika i pragmatika preventiva' (Semantics and Pragmatics of the Preventive), *Russian Linguistics* **16**, 1-22.

Bogusławski, A.: 1985, 'The Problem of the Negated Imperative in Perfective Verbs Revisited', *Russian Linguistics* **9**, 225-239.

Bybee, Joan. 1998. Irrealis as a grammatical category. *Anthropological Linguistics* 40, 257-271.

Chafe, Wallace. 1995. The Realis-Irrealis Distinction in Caddo, the Northern Iroquoian Languages, and English. In J. Bybee and S. Fleischman (eds.), *Modality in Grammar and Discourse*.

Elliott, Jennifer R. 2000. Realis and irrealis: Forms and concepts of the grammaticalisation of reality. *Linguistic Typology* 4:55-90.

Fauconnier, Giles. 1975. Polarity and the Scale Principle. *CLS* 11:188-199.

von Fintel, Kai. 1999. NPI-Licensing, Strawson-Entailment, and Context-Dependency. *Journal of Semantics* 16, 97-148.

Giannakidou, Anastasia. 1995. Subjunctive, habituality and negative polarity. *Semantics and Linguistic Theory* V, 94-111.

Giannakidou, Anastasia. 1998. *Polarity Sensitivity as (Non)Veridical Dependency*. Amsterdam: J. Benjamins.

Giannakidou, Anastasia (2006). *Only*, emotive factive verbs, and the dual nature of polarity dependency. *Language* 82.

Giannakidou, Anastasia, and Zwarts, Frans. 1998. *Temporal, aspectual structure and (non)veridicality*. Ms.

Givón, T. 1994. Irrealis and the Subjunctive. *Studies in Language* 18, 265-337.

Harmer, L.C.: 1979, *Uncertainties in French Grammar*, Cambridge.

Harves, Stephanie (2002). *Unaccusative Syntax in Russian*. Ph.D. dissertation, Princeton University.

Hopper, Paul J., and Thompson, Sandra A. 1980. Transitivity in Grammar and Discourse. *Language* 56, 251-299.

Hualde, José Ignacio, and Ortiz de Urbina, Jon. 2003. *A grammar of Basque*. Mouton de Gruyter.

Huumo, Tuomas. 2003. Incremental existence: the world according to the Finnish existential sentence. *Linguistics* 41(3), 461-493.

Israel, Michael. 1996. Polarity Sensitivity as Lexical Semantics. *Linguistics and Philosophy* 19, 619-666.

Ivić, M. 1958. Upotreba vida v slovenskom imperativu s negacijom (Aspect usage in Slavic imperative with negation. *IV Meždunarodnyj s''ezd slavistov. Slavjanskaja filologija: sbornik statej II*. 96-111.

Kadmon, Nirit, and Landman, Fred. 1993. Any. *Linguistics and Philosophy* 16 353-422.
Kaiser, Elsi. 2002. Case Alternation and NPIs in Questions in Finnish. *Proceedings of WCCFL* 21, 194-207.
Kinkade, M. Dale (2001). Proto-Salish Irrealis. *The 36th International Conference on Salish and neighbouring languages (U of BC WPiL 6)*.
Kiparsky, Paul. 1998. Partitive Case and Aspect. In: M. Butt and W. Geuder (eds.), *The Projection of Arguments*. CSLI.
Kuryłowicz, J.: 1971, 'Słowiański genetivus po negacji', *Sesja naukowa międzynarodowej komisji budowy gramatycznej języków słowiańskich*, 11-14.
Laka, Itziar. 1990 *Negation in Syntax: On the Nature of Functional Categories and Projections*. Ph.D. dissertation, MIT. Cambridge, MA.
Ladusaw, William. 1980. *Polarity Sensitivity as Inherent Scope Relations*. New York: Garland.
Linebarger, Marcia. 1980. *The Grammar of Negative Polarity*. PhD thesis. MIT.
Levinson, Dmitry. 2005. *Aspect in Negative Imperatives and Genitive of Negation: A Unified Analysis of two Phenomena in Russian*. Ms.
Melnar, Lynette R. 2004. *Caddo verb morphology*. Lincoln, NE: University of Nebraska Press.
Mithun, Marianne. 1999. *The Languages of Native North America*. Cambridge: Cambridge University Press.
Muller, C.: 1991, *La négation en français: syntaxe, sémantique et éléments de comparaison avec les autres langues romanes*, Geneve.
Nater, H. F. (1984). *The Bella Coola Language*.
Nathan, Geoffrey S., and Epro, Margaret W. 1984. Negative polarity and the Romance subjunctive. *Papers from the XIIth Linguistic Symposium on Romance Languages*, ed. Philip Baldi.
Ortiz de Urbina, Jon. 1985. Partitive Constructions, Unaccusativity and Ergativity. *Studies in the Linguistic Sciences* 15(1), 147-155.
Palmer, F. R. 2001. *Mood and Modality*. Cambridge: Cambridge University Press.
Pereltsvaig, Asya. 1999. The Genitive of Negation and Aspect in Russian. In: Y. Rose and J. Steele (eds.), *McGill Working Papers in Linguistics* 14, 111-140.
de Rijk, Rudolf P. G. 1972. Partitive Assignment in Basque. *Anuario del Seminario de Filología Vasca "Julio de Urquijo"* 6, 130-173.
Roberts, John R. 1990. Modality in Amele and other Papuan Languages. *Journal of Linguistics* 26, 363-401.
Rullmann, Hotze. 2003. Additive Particles and Polarity. *Journal of Semantics* 20, 329-401.
Schwenter, S.A. 2006. 'Fine-Tuning Jespersen's cycle', Birner, B.J., Ward, G. (eds.), *Drawing the Boundaries of Meaning: Neo-Gricean Studies in Pragmatics and Semantics in Honor of Laurence R. Horn*.
van der Wouden, Ton. 1996. *Negative contexts*. London: Routledge.

Zenčuk, V.N. 1971. Otricatel'nye imperativnye construkcii v serboxorvatskom i drugix slavjanskix jazykax. *Vestnik LGU, istorija, jazyk, literatura*, no 2(8), 77-83.

Dmitry Levinson
Department of Linguistics
Stanford University
Stanford, CA 94305

dmitryle@stanford.edu