

Polarity Sensitivity in Inflectional Morphology^{*}

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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.

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.

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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/absolute). 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

This prediction is supported by the observation (Fauconnier 1975; Israel 1996) that emphatic negative polarity items (NPI) denote low quantities. The predicted possible polarity sensitivity of the morphological categories mentioned above is given in the following table:

Category	Positive polarity	Negative polarity
Object marking	Accusative/absolute	Partitive
Aspect	Perfective	Imperfective
Mood	Realis (Indicative)	Irrealis (Subjunctive)

Table 2. Morphosyntactic categories and their expected polarity sensitivity.

In the rest of the paper I examine the individual categories and show that this

prediction is indeed borne out. 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. In negative sentence another case marking is available: the genitive. This phenomenon is known as Genitive of Negation, and it exists, to various extents, in most Slavic and Baltic languages. A common view of the development of Genitive of negation is that it is a result of a reanalysis of partitive as part of negation and the spread of partitive by analogy to nouns that originally could not be used with it (Levinson 2005). This is similar to the mechanism proposed by Fauconnier (1975) and Israel (1996) for the development of negative polarity items, and Pereltsvaig (1999) indeed argued that Russian Genitive of Negation a negative polarity item.

(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'

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 (4); the accusative can only be used with a telic eventuality. Secondly, the partitive is used if an NP denotes an indeterminate quantity (5). Finally, the partitive is obligatory with negation.

(4) 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.'

- (5) 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.

- (6) Pekka huomasi miehen /*miestä.
Pekka-NOM noticed man-ACC/*man-PRT
'Pekka noticed a/the man.'
- (7) Huomasi-ko Pekka miehen/miestä?
Noticed-Q Pekka-NOM man-ACC/man-PRT
'Did Pekka notice a/the man?'

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

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

3.4. Partitive in Presentational/Existential Sentences

The partitive-licensing contexts discussed above are known to be NPI-licensors: 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).

(10) Ima/evo kruh-a. (Croatian)
There-is/here bread-GEN
‘There is bread./Here’s bread.’

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

(12) 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-licensors. 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. 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.

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).

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

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

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 5.3.2.

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

(16) Ja tuda često prišodil/*prišol.
I there frequently came.IPFV/*came.PFV
'I frequently came there.'

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

(18) 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.

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. A similar observation was made by Giannakidou (1995) for Greek and Romanian.

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

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

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

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

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

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 real-

is/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):

- (24) sah -yi=bahw-nah YES-NO QUESTION
 2ND.AGENT.IRREALIS-see-PERFECT
 ‘Have you seen him?’
- (25) kúy-t’a-yi=bahw NEGATION
 NEG-1ST.AGENT.IRREALIS-see
 ‘I don’t see him.’
- (26) kas-sa-náy= aw OBLIGATION
 OBLIGATIVE-3RD.AGENT.IRREALIS-sing
 ‘He should/is supposed to sing.’
- (27) hí-t’a-yi=bahw ANTECEDENT OF A CONDITIONAL
 CONDITIONAL-1ST.AGENT.IRREALIS-see
 ‘If I see it.’
- (28) 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

5.3.1. 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 cri-

terion of (*non*)*veridicality*. The NPIs are said to occur only in nonveridical environments. A simplified definition of veridicality is given here:

- (29) F is *veridical* just in case $Fp \rightarrow p$ 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 world, situations.

5.3.2. 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 irrealis¹. 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 (28).

- (30) 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. Moreover, habituals can license NPIs. The following example is from Giannakidou (1998:134). As noticed in section 4.2, Russian *-nibud’* indefinites exhibit a similar behavior.

- (31) 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’.

This is a counterexample to nonveridicality as a licensing condition². To conclude, we see that habitual sentences can license NPIs and irrealis marking, violating the proposed licensing conditions.

5.3.3. Emotive Factives

Another problematic usage occurs in the complements of emotive factive verbs

¹ 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).

² Giannakidou (1998:134), Giannakidou and Zwarts (1998:9) analyse (31) as non-veridical; however, the contrast they show is not exhibited by the Russian *-nibud’* indefinites.

(*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.

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

(33) 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 factives (Linebarger 1980; Kadmon and Landman 1993; von Stechow 1999).

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

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.

5.4. Realis/Irrealis: Conclusions

As predicted, the low transitivity marker, irrealis, is used in NPI-licensing environments in many languages. 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. 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 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. These observations extend the domain of polarity sensitivity research and provide a unifying analysis of a variety of morphosyntactic phenomena.

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