Doubly Licensed Polarity Items in Greek*

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1 Doubly Licensed Polarity Items

Polarity Items show limited distribution sensitive to semantic characteristics of the environment they occur in. This sensitivity is of great theoretical interest because it is often modeled as a syntactic constraint sensitive to semantic information, and so PIs may shed light on the syntax/semantics interface. This paper will present new data from Greek showing variable behavior of doubly-licensed NPIs. This new data will pose a challenge for syntactic theories of NPI licensing, in favor of a semantic theory like that of Krifka (1995) with flexible licensing contexts.

Since Ladusaw (1979) claimed that Negative Polarity Items were licensed in downward entailing (DE) contexts, a major puzzle has been what licenses the NPI *anything* in (1b) or *anything at all* in (2b).

(1) a. If he knows anything about logic, he will know Modus Ponens.
    b. If he doesn't know anything about he will still know Modus Ponens.

(2) a. She very rarely eats anything at all for lunch.
    b. She very rarely doesn't eat anything at all for lunch.

*Thanks to Anastasia Giannakidou for providing the Greek examples and judgments used in this paper.

The problem with these for the DE account is that *if* and *rarely* are downward entailing operators and license NPIs, such as *anything* in (1a) and (2a). *Didn't* is also a downward entailing operator, and a downward entailing operator in the scope of another downward entailing operator creates an upward entailing context within its scope. Thus, the NPIs in (1b) and (2b) not in a downward entailing context and should not be licensed.

Dowty (1994) captures these data by making DE operators "pass down" a negative syntactic feature that licenses NPIs within their scope. Having multiple negative features "passed down" in a context still results in a context that is syntactically negative, licensing the NPI even though the context is not semantically DE.

2 Non-veridicality and NPIs

Giannakidou (1999) argues that many NPIs in Greek and in English are not sensitive to DE contexts, but non-veridical contexts. A context is non-veridical just in case it is in the scope of a non-veridical operator.

(3) Definition: (non)veridical operator:
A propositional operator Op is veridical iff for any proposition p, Op(p) entails p.
Op is non-veridical otherwise.
Op is anti-veridical iff for any proposition p, Op(p) entails ¬p.

This immediately explains (1 – 2); the NPIs in all four examples are in non-veridical contexts.

Different Greek NPIs are sensitive to different contexts. Some NPIs are licensed in any non-veridical context, while others are only licensed in an anti-veridical context. A particularly interesting paradigm in Greek NPIs is shown in (4), where each NPI comes in two forms: a standard form that's licensed in non-veridical contexts, and an emphatic form, which receives emphatic phonological stress and occurs only in anti-veridical contexts. This distinction is shown for the kanenas/KANENAS in (5), where the NPI is glossed as *n-person* (examples taken from Giannakidou, 1999).

(4) kanenas/KANENAS anyone, anybody

tipota/TIPOTA	anything
pote/POTE	ever
puthena/PUTHENA	anywhere
katholu/KATHOLU	at all

(5) a. O papus dhen idhe kanenan/KANENAN apo ta egonia tu.
the gandpa not saw.3SG n-person from the grandchildren his
'Grandpa didn't see any of his children.'

b. Elpizo na emine *KANENA/kanena komanti.
hope.1SG na left.3SG n-person piece
'I hope there is a piece left.'

Moving from DE licensing NPIs to non-veridicality solves the problems in (1 – 2), but it raises a new question: what happens when there is an NPI in the scope of two anti-veridical operators? Since each anti-veridical operator entails the falsity of its complement, the second operator will entail the truth of its complement. For example, both *didn't* and *without* are anti-veridical, and the sentence *John didn't finish the project without talking to anybody* entails that John did talk to somebody.

If the dependency between an NPI and its licensor is syntactic, we would expect both sorts of NPIs to be licensed in the double anti-veridical context. If the dependency is semantic, we expect the NPI to be unacceptable, unless the semantic dependency is such that it only requires a locally non-veridical context. Since I haven't made any specific claims about the nature of the a semantic dependency, it's not clear what we should expect under this hypothesis.

3 Double Anti-veridical Contexts

There are two anti-veridical operators in Greek that I will look at here: *dhen*, 'not', and *xoris*, 'without'. (6) and (7) form a minimal pair, where the only difference is the existence of the anti-veridical operator *dhen* in (7).

(6) O Janis bori na teliosi ti doulia xoris na milisi se
the John can.3SG na finish.3SG the job without na talk.3SG to
kanenan/KANENAN.
n-person
'John can finish the project without talking to anybody.'

(7) O Janis dhen bori na teliosi ti doulia xoris na milisi se
the John not can.3SG na finish.3SG the job without na talk.3SG to
kanenan/*KANENAN.
n-person
'John can't finish the project without talking to anybody.'

This shows an interesting pattern. In an anti-veridical context embedded within an anti-veridical context, the nonemphatic NPI is acceptable, but the emaphatic is not. This is not likely caused by some phonological conditions on the acceptability of emphatic stress, since the emphatic is acceptable in (6). Nor is it likely that *dhen* is blocking some required syntactic relation, such as movement. Instead, it seems that the emphatic is only licensed in semantically antiveridical contexts, and the context it occurs in in (7) is not anti-veridical.

It may seem surprising then that the nonemphatic is licensed in (7). However, the use of the modal *bori* ('can') is plausibly a non-veridical operator, which could be licensing the nonemphatic. The relevant test is shown in (8) and (9), where the modal is removed and the matrix clause is in the simple past tense, which is a veridical context.

(8) O Janis teliose ti doulia xoris na milisi se kanenan/KANENAN.
the John finished.3SG the job without na talk.3SG to n-person
'John finished the project without talking to anybody.'

(9) O Janis dhen teliose ti doulia xoris na milisi se
the John not finished.3sg the job without na talk.3sg to
kanenan/*KANENAN.
n-person
'John didn't finish the project without talking to anybody.'

Surprisingly, the pattern here is the same as that seen in 6) and (7). In the double anti-veridical context, the emphatic NPI is unacceptable[1] and the nonemphatic is acceptable.

4 Preliminary Analysis

I follow Giannakidou (1999) and Giannakidou (2000) and assume that emphatics and nonemphatics are separate lexical entries, and that the differences between them cannot be reduced to focus stressing.

Emphatics and nonemphatics have many other semantic differences besides their sensitivity to different licensing conditions. Giannakidou (2000) argues that emphatics are universal, while nonemphatics are existential. She also argues that emphatics always take wide scope with respect to any other scope operator, while nonemphatics always take narrow scope.

This difference in scope taking may account for the acceptability pattern seen in (9). In a standard QR analysis, the emphatic must first raise all the way out to a sentence peripheral position above the matrix clause at LF (omitting intervening raising steps). The result is shown in (10) and (11).

(10) KANENAN$_i$ [[O Janis teliose ti doulia xoris] [na milisi se t$_i$]]
n-person$_i$ [[the John finished.3SG the job without] [na talk.3SG to t$_i$]]

(11) * KANENAN$_i$ [[O Janis dhen telios ti doulia xoris] [na milisi se t$_i$]]
n-person$_i$ [[the John not finished.3sg the job without] [na talk.3sg to t$_i$]]

The inner brackets break the scope of *KANENAN* into a propositional operator and the minimal proposition containing the trace of QR. The acceptability patterns in (10) and (11) are captured by the following assumption:

[1]The emphatic NPI is acceptable under an irrelevant reading where the two clauses are interpreted independently. This is the case when (9) is interpreted as 'John didn't finish the job, and he didn't talk to anybody.' This is what we'd expect if it was really semantic anti-veridicality licensing the NPI, and not a syntactic feature of anti-veridical operators, because the second anti-veridical operator is not in the scope of the first under such a reading. This reading is a bit of a stretch, and the judgements above all reflect the more natural reading 'John finished the job but not without talking to anybody.'

(12) Emphatic NPIs must take immediate scope over a proposition that can be factored into two parts:
   1. The minimal proposition containing the trace of the moved emphatic NPI.
   2. An anti-veridical propositional operator applying to that minimal proposition.

In (10), the propositional operator intervening between the raised emphatic NPI and its trace is anti-veridical. In (11) it is not.

But the propositional operators are not a constituent according to standard syntactic assumptions, so the double anti-veridical operators cannot compose in the semantics to create a single complex veridical propositional operator. Thus, we must either restate the licensing condition for emphatic NPIs in (12) or revise our syntactic assumptions.

In the CCG frame of eg Steedman (2000), the bracketed propositional operators in (10) and (11) are syntactic constituents which the grammar assigns a meaning, allowing the constraint in (12) to remain as stated with only minor revisions to account for the fact that scope taking is done by function composition rather than movement. I will not restate (12) here; the point is merely to show that CCG provides a framework where the operator is a constituent that is assigned an interpretation. The proof is shown in (13). It is interesting to note that this sort of function composition is the only way to give a quantifier wide scope in the CCG framework.

(13)

$$\dfrac{\dfrac{\dfrac{\textit{o Janis}}{NP}}{S/_R(S/_L NP)}\,\mathrm{T} \qquad \dfrac{\dfrac{\dfrac{\dfrac{\textit{dhen}}{(VP)/_R(VP)} \qquad \dfrac{\dfrac{\textit{teliose ti doulia}}{VP}}{VP/_R(VP/_L VP)}\,\mathrm{T} \qquad \dfrac{\textit{xoris}}{((VP)/_L(VP))/_R S}}{VP/_R S}\,>\mathrm{B}}{(S/_L NP)/_R S}\,>\mathrm{B}}{S/_R S}\,>\mathrm{B}$$

Now consider the scoping facts for nonemphatics, which must take narrow scope. According to a QR theory, this means that they must raise to a position just above their minimal clause. The position of the NPI *kanenas* after QR in (9) is shown in (14).

(14) O Janis dhen teliose ti doulia xoris kanenan$_i$ [na milisi se t$_i$]
the John not finished.3sg the job without n-person$_i$ [na talk.3sg to t$_i$]

Perhaps because the NPI needn't (and in fact mustn't) scope over both anti-veridical

operators, the lower operator is free to combine with the proposition containing the NPI, licensing it then, and later that clause combines with the higher anti-veridical operator.

Another possibility is that the nonemphatic NPIs are syntactically licensed by some sort of Agree relation holding between polarity features on the NPI and its licensor, while the emphatic NPIs are semantically licensed. Empatics and nonemphatics already show a number of syntactic and semantic differences (see Giannakidou, 2000), so it would not be so surprising if they differed in the mechanism licensing them as well.

But a syntactic account of NPI licensing fails to explain the semantic uniformity of NPI licensers. The fact that NPI licensers are all non-veridical suggests that there is something semantically deficient about NPIs that requires them to occur within a non-veridical context for them to have a coherent meaning. Such a theory of the semantics of NPIs is beyond the scope of this paper, but it could prove essential for explaining the difference between emphatics and nonemphatics in the double anti-veridical contexts.

5 Conclusion

It's long been known that NPIs come in many different forms and are licensed in a variety of different contexts. This paper has looked at two types of NPIs in Greek: emphatics, licensed in anti-veridical contexts, and nonemphatics, licensed in non-veridical contexts. I showed that when we put an NPI in the scope of two anti-veridical operators, such that the context was locally anti-veridical but globally veridical, the nonemphatics were acceptable and the emphatics were unacceptable. This suggests that emphatics are semantically sensitive to their global environment, while nonemphatics are either syntactically licensed or are semantically sensitive to their local environment. This difference correlates with an interesting difference in scope taking for these items, suggesting that the scope properties of these NPIs may account for the difference in their distribution. However, further research needs to be done on the semantics of NPIs, explaining why NPIs require a non-veridical context, before we can draw any conclusions about this correlation.

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