RESEARCH ARTICLE

There is no number effect in the licensing of negative polarity items: a reply to Guerzoni and Sharvit

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Abstract   Guerzoni and Sharvit (Linguistics and Philosophy 30:361–391, 2007) provide an argument that plural, but not singular, wh-phrases may contain a negative polarity item in their restriction, and connect this with the semantic property of exhaustivity. I will show that this claim is factually incorrect, and that the theory of negative polarity licensing does not need to be complicated by taking number distinctions into account. In addition, I will argue that number distinctions do not appear to be relevant for polarity items in the restriction of definite noun phrases either.

Keywords   Negative polarity items · Licensing · Wh-questions · Existential presupposition

1 Introduction

Guerzoni and Sharvit (2007, p. 363) have drawn attention to a subtle distinction in the acceptability of negative polarity items such as *ever* and *any* when they appear in the restriction of plural and singular *wh*-phrases. They claim, contra van Rooij (2003), that while such expressions are licit in the restriction of a plural *wh*-phrase, they are not permitted in the restriction of a singular *wh*-phrase, and illustrate this claim with the following minimal pair:

(1)   a.   Which students who have any interest in polarity attended the seminar?
       b.   #Which student who has any interest in polarity attended the seminar?

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Similar observations are said to hold for embedded questions. Guerzoni and Sharvit (2007, p. 371) state:

> NPIs occurring in the *wh*-restrictor are always licensed if the restrictor is plural and never if it is singular, regardless of whether the *wh*-question is embedded or not and regardless of the particular choice of the embedding predicate.

and conclude (2007, p. 389) that ''the distribution of NPIs in interrogative clauses is more complex than previously assumed''.

To the observation in (1), which I will dub the *number effect*, another one is added, regarding definite descriptions, which is likewise intended to show a difference between singular and plural noun phrases (Guerzoni and Sharvit 2007, p. 372):

(2) a. The students who have any books on NPIs are selling them.
     b. *The student who has any books on NPIs is selling them.

My goal, in this brief reply, is to show, first and foremost, that there is no number effect, that is, no principled distinction, with regard to the licensing of polarity items, between singular and plural *wh*-terms, and second, that the parallelism noted with definite descriptions is problematic as well. Guerzoni and Sharvit make many interesting points in their paper, some of which are orthogonal to the existence of a number effect. My concern here will be only with the latter.

2 NPIs in the restriction of *wh*-phrases

2.1 Ever, any, je

The set of negative polarity items is rather diverse, and claims about the licensing of one polarity item need not extend to the next polarity item (cf. van der Wouden 1997; Zwarts 1998; Israel 1996; Giannakidou 2008). Since Guerzoni and Sharvit illustrate their paper primarily with occurrences of *any* and *ever*, I will first try to establish whether their claims are justified with respect to these two items, which are known to have a very similar distribution. Subsequently, I will consider other types of NPIs as well, to check whether they are in agreement with the tenets of Guerzoni and Sharvit.

First, let us consider some examples involving *ever*, found using the internet search engine Google:

(3) I'm curious to know then, which sinner who has ever been redeemed has been worth the price of Jesus' blood? (http://mooreblog.typepad.com/mark_moores_blog/calvinism/index.html)

(4) For who of you that has ever gone to the stalls where dainty foods are sold has not observed the lavish expenditures of these men? (Aeschines, *Against Timarchus*, translated by Charles Darwin Adams, Cambridge, MA: Harvard University Press; London, William Heinemann Ltd., 1919).

(5)   Who of us, or who that has ever read the writings and history of Jeremiah
        the prophet, would charge him with weak-mindedness?
        (http://www.revivalschool.com/)

Note that these examples have a somewhat archaic flavor. However, this should not
matter for our purposes, since the claims in Guerzoni and Sharvit (2007) are not
restricted to a particular type of English, say 21st century American English, and
presumably even meant to be universal in nature. Examples like (3–5) are rare, but
perfectly acceptable. The reason they are rare is most likely that elaborate restric-
tions of *wh*-phrases are more unusual in modern English than in older writing styles.
However, even some modern-sounding examples can be found on the Internet,
including the following, with extraposed relative clause:

(6)   Which 1000 plus home development do you know of, that has ever been
        fully completed as planned?
        (http://delmardustpan.blogspot.com/2007_02_01_archive.html)

Next, let's consider occurrences of *any*. Here are some instances from the Internet.
Note that the occurrences can be found in relative clauses as well as *with*-PPs acting
as restrictions. The latter are more common as restrictions of *wh*-phrases than
relative clauses.

(7)   Which person that actually does anything in his life and seriously
        contributes to society has the time or energy to think of and let alone
        implement such a useless and annoying idea as to have music play on
        loudspeakers Erev Shabbos? (http:// http://chaptzem.blogspot.com)

(8)   indeed, what man with any life in him feels not the power of such a woman?
        (http://www.fullbooks.com/D-Ri-and-I4.html)

(9)   What man with any business sense at all would agree to a deal like that?
        (http://www.cowart.info/blog/2007_05_01_rabidfun_archive.html)

All examples are perfectly acceptable, and all involve restrictions to clearly singular
wh-phrases.
    Similar observations can be made for other languages about the counterparts of
ever and *any*. The following German example contains an instance of the adverb *je*
'ever' as part of the restriction of a singular *wh*-phrase:

(10) Welcher Flugzeugtyp, der je   in militärischen Konflikten dem Feind
        What   airplanetype that ever in military   conflicts   the   enemy
        gegenüberstand, kann das schon   von sich behaupten
        confronted,   can   that already of self claim
        'What airplane that ever confronted the enemy in a military conflict could
        say that about itself?'

(http://www.modellversium.de/galerie/9-flugzeuge-props/
1347-junkers-j1.html)

Anastasia Giannakidou (p.c.) points out that the Greek counterparts to *Which student(s) that has (have) any interest in polarity attended the seminar?* are ungrammatical, if they contain an occurrence of the weak polarity item *kanenas*, regardless of number. She argues that this is due to the presence of veridical tense (simple past), which forces an existential commitment. I cannot judge the Greek case, but will argue in what follows that this existential commitment is absent precisely in those cases where polarity items are licit in English, German or Dutch. The reader is invited to check this for the examples (3–10) above, which never seem to presuppose the existence of the set denoted by the restriction of the universal quantifier. As noted by Giannakidou (p.c.), a sentence like (8) above is much better than, e.g. **What man with any life in him felt just a minute ago the power of this woman?* in which the past tense (in combination with the adverbial *just a minute ago*) forces an episodic (nongeneric and nonhabitual) reading. For a treatment of the differences between English *any* and Greek *kanenas* in terms of the twin notions of *licensing* and *rescuing*, I refer the reader to Giannakidou (2006).

2.2 Polarity sensitive modifiers

Let's next consider some other types of NPIs than *ever* and *any*. Especially interesting for our purposes are NPIs that are adnominal modifiers, since their semantic role would always be that of a restriction. A case in point is *worth his salt*, a phrase mainly used in the restriction of universal (including generic) and negative noun phrases. Note the difference between (11e), which is generic, and (11f), which is not.

(11)   a.   No Irishman worth his salt drinks Heineken.
       b.   Any Irishman worth his salt drinks Guinness.
       c.   Every Irishman worth his salt can dance.
       d.   Few Irishmen worth their salt stay sober.
       e.   An Irishman worth his salt drinks Guinness.
       f.   *An Irishman worth his salt was drinking Guinness.
       g.   *Some Irishmen worth their salt were drinking.

Turning now to interrogative contexts, we see that singular hosts pose no problem for this NPI:

(12)   a.   What Irishman worth his salt drinks Heineken?
       b.   Which Irishman worth his salt would stay sober on St Patrick's Day?

Another polarity sensitive modifier is *earthly*, in one of its senses. It appears with negation and with universal quantifiers, and modifies primarily abstract nouns:

(13) a. I have no earthly clue, frankly.
     b. They have every earthly reason to be mad.
     c. I didn't have any earthly idea what she was up to.
     d. *I had an earthly idea what she was up to.

as well as singular *wh*-phrases:

(14) a. What earthly reason could she have to say a thing like that?
     b. What earthly use is a TV in a place without electricity?

As a final example of a polarity-sensitive modifier, consider *in his right mind*. Again, it appears in standard NPI contexts, but not elsewhere:

(15) a. No woman in her right mind would date this fellow.
     b. Every woman in her right mind should stay away from him.
     c. Everybody in their right mind should steer clear of him.
     d. *Some women in their right minds steered clear of him.

Singular *wh*-phrases are perfectly acceptable hosts:

(16) a. Which woman in her right mind would date this fellow?
     b. Who in his right mind would disagree?
     c. What student in his right mind would study with professor X?

Polarity sensitive modifiers appear to come in two flavors: some are natural domain-restrictors, intended to restrict the quantifier to some relevant subset, while others are domain-extenders, functioning as pragmatic wideners in the sense of Kadmon and Landman (1993). The modifiers *worth his salt* and *in his right mind* are of the former kind, *earthly* is of the latter kind (together with PPs such as *on earth*, adverbials like *ever*, etc.). Either type of modifier may felicitously appear in the restriction of a *wh*-expression.

2.3 *Even*-type NPIs

Many languages have scalar expressions similar to English *even* that behave as negative polarity items (cf., among others, Rooth 1985; Lahiri 1998; Hoeksema and Rullmann 2001; Rullmann 2003; Guerzoni 2003; Schwarz 2005; Giannakidou 2007). A case in point is German *auch nur* 'also only', a complex particle cluster with NPI status. As the following examples show, this NPI may appear in the restriction of a singular *wh*-phrase:

(17) Welcher Mensch, der auch nur einen Hauch Ahnung von japanischer Kultur
     What person who also only one breath idea of japanese culture
     aufweist, würde sich so verhalten?
     shows would self so behave
     'What person with even one inkling of Japanese culture would behave
     that way?' (http://www.saraarauhito.net)

(18) Welcher Sportler,   der   auch nur   ein bisschen Ehrgeiz hat, steckt
      Which   sportsman who also even one bit   pride   has sticks
      denn schon gerne eine Niederlage ein?!
      then already gladly a   defeat   in
      'What sportsman with even a little bit of pride would gladly suffer defeat?'
      (http://www2.fortuna-duesseldorf.de/fileadmin/media/fa/675.pdf)

Similar examples can be constructed for English, which has the polarity sensitive
expression *so much as*:

(19) What student that plagiarizes so much as one paper would you ever
      trust again?

The general picture sketched above—that restrictions of singular *wh*-phrases are
acceptable hosts for NPIs—is therefore confirmed by the behavior of *even*-type
NPIs.

3 Definite descriptions

The alleged number effect in *wh*-restrictions has also been invoked for definite
descriptions (Lahiri 1998; Guerzoni and Sharvit 2007). A crucial pair of examples is
given in (2), repeated below:

(2)   a. The students who have any books on NPIs are selling them.
      b. *The student who has any books on NPIs is selling them.

The difference between (2a) and (2b) is argued by Guerzoni and Sharvit to follow
from Kai von Fintel's theory of Strawson-entailment (von Fintel 1999—see also
Giannakidou 2006 for a critique). Strawson entailment is the following type of
entailment: p Strawson-entails q iff p and the presuppositions of q entail q. Normally,
a downward entailment like the one in (20) is not valid:

(20) Only John ate vegetables
      Kale is a vegetable
      —————————————————

      Only John ate kale

But if the presupposition of the conclusion (*John ate kale*) is added as an extra
premisse, the argument is valid:

(21) Only John ate vegetables
      Kale is a vegetable
      John ate kale [required to make the conclusion defined]
      ————————————————————————————————————

      ∴ Only John ate kale

Given that *only* may trigger negative polarity items, but does not appear to be downward entailing in a straightforward way, this is a welcome result. In Ladusaw's (1980) account of polarity licensing, an NPI is licensed in a downward entailing (DE) environment. *Only* is a well-known problem for Ladusaw's theory, given the acceptability of sentences such as (22):

(22)   a.   Only Jones ever ate kale.
       b.   Only nerds know anything about matrix algebra.

If the DE requirement is weakened to Strawson DE, Ladusaw's theory can be made to work for triggers like *only* as well. Guerzoni and Sharvit argue that singular definite descriptions are both Strawson DE and Strawson UE (upward entailing), whereas plural definite descriptions are only Strawson DE. They argue this point as follows: *The students came late* asserts that every student came late and presupposes that there is a unique group of students; *the student came late* asserts likewise that every student came late and presupposes that there is a unique salient student. For the plural noun phrase *the students*, the following Strawson DE pattern is valid:

(23)   The students came late
       There is a unique salient group of French students
       ————————————————————————————————
       ∴ The French students came late

And similarly for the singular noun phrase *the student*:

(24)   The student came late
       There is a unique salient French student
       ——————————————————————————
       ∴ The French student came late

but the Strawson UE pattern is claimed not to be valid for *the students*:

(25)   The French students came late
       There is a unique salient group of students
       ———————————————————————————
       The students came late

while it is for *the student*:

(26)   The French student came late
       There is a unique salient student
       ———————————————————
       ∴ The student came late

Actually, whether (25) is valid or not is debatable. If there is a unique salient group of French students and a unique salient group of students, could these two groups be distinct? If they are, then the conclusion of (25) would indeed not follow. But any salient group of French students is of course also a salient group of students, and given that there is only one salient group of students, the two salient groups must coincide. But in that case (25) is valid after all.

So the theoretical underpinning of the number effect for definite descriptions is shaky at best. It is also empirically weak. Definite descriptions rarely act as hosts for NPIs. Given the wealth of plural definite noun phrases with modifiers such as relative clauses, a fair number of the NPIs in restrictive relative clauses should be triggered by plural definites. The numbers of occurrences of restrictions of various types of noun phrases found in a database with 6029 occurrences of the Dutch polarity item *ook maar* (cf. Hoeksema and Rullmann 2001) are shown in Table 1.

Definite descriptions are common enough, but not as triggers of *ook maar*. As a matter of fact, of the 8 occurrences found, 5 were singular, and 3 plural. The numbers are small, to be sure, and the difference is statistically insignificant, but the predicted large difference between singular and plural definites was not found. Some samples from the database are given in (27) and (28) below:

(27) Hierdoor wordt de moslim die ook maar iets   over zijn
     Hereby gets the muslim who even   anything about his
     godsdienst te berde brengt, door de   westerse media al
     religion   to table brings, by   the western   media already
     snel als   een fundamentalist afgeschilderd
     soon as   a   fundamentalist depicted
     'By this the muslim who brings up anything about his religion is all too
     soon depicted as a fundamentalist by the western media'

(28) Excommunicatie   wacht degene die ook maar een bladzijde steelt
     Excommunication awaits the one that even   one page   steals
     'Excommunication awaits the person that steals even one page'

Table 1 *ook maar* in the restriction of noun phrases (and some adverbs)	Type of noun phrase	Number of occurrences	% of *ook maar*
	alle/alles 'all'	93	1.5
	ieder 'every'	135	2.2
	elk 'every'	28	0.5
	telkens 'each time'	5	0.1
	overal 'everywhere'	2	0.03
	generic bare plurals	14	0.2
	generic indef. sg.	11	0.2
	def. descriptions	8	0.1

It appears that definite descriptions are acceptable hosts only when their existential presuppositions are somehow lifted. This is the case in certain types of generic statements involving definite descriptions, e.g.

(29) a. The students who have ever tried to grasp this theorem know how hard it is.
      b. The student who has ever tried to grasp this theorem knows how hard it is.

Both statements appear to lack the existential presupposition which normally attaches to a simpler statement such as

(30) The students know how hard this theorem is.

Note that (29a) is easily interpreted as generic, whereas a sentence that lacks such an interpretation, for instance (31) below, is rather less acceptable:

(31) *John and Bill are the students who have ever tried to grasp this theorem.

Sentences such as (29) are comparable to sentences with free relative clauses such as

(32) Whoever has ever tried to grasp this theorem knows how hard it is.

Free relative clauses, as well as restrictions of generic indefinites, are fine as hosts for NPIs such as *ever* or the Dutch *ook maar*.

In the case of generic indefinites, too, we fail to find a number effect, since both bare plurals and singular generic indefinites may act as hosts:

(33) a. Students who have ever tried to solve this puzzle know how hard it is.
      b. A student who has ever tried to solve this puzzle knows how hard it is.

Among singular universal quantifiers, there is a peculiar difference between *every* and free choice *any* on the one hand, and *each* on the other (cf. e.g. Seuren 1985):

(34) a. The captain knows every sailor who has ever served on his ship.
      b. The captain knows any sailor who has ever served on his ship.
      c. *The captain knows each sailor who has ever served on his ship.

As argued in Hoeksema (1986, p. 37), the definite nature of *each* sets it apart from the other universal quantifiers. Unlike singular definite *the*, however, the quantifier *each* does not seem to be able to shed its existential presupposition, making sentences like (34c) generally unacceptable. In a collection of 227 English polarity items occurring in the restriction of a universal quantifier, none were found triggered by *each* (as opposed to 87 triggered by *any*, 68 by *every*, 62 by *all*, and 10 occurring in free relative clauses).

4 Discussion and conclusions

On the basis of empirical data from English and German, mostly culled from the Internet, I have argued against the claim put forward in Guerzoni and Sharvit (2007) that there is a difference in licensing possibilities in the restriction of singular and plural *wh*-phrases. The theoretical claim of that paper, viz. that exhaustivity plays a role in the licensing of negative polarity items, is therefore unsubstantiated.

A similar claim regarding a number effect in definite noun phrases was argued to be unfounded theoretically, as well as empirically inadequate. In the case of singular definites, it was noted that whenever polarity items were acceptable in the restriction of the singular (or plural) definite, the existential presupposition normally associated with definites is lifted. The definite receives a generic or quasi-universal interpretation, just as would be predicted by standard monotonicity-based accounts of polarity licensing. This means that the standard account, which Guerzoni and Sharvit take as their theoretical point of departure, just as I do, does not need to be elaborated with an account in terms of exhaustivity, in which the semantic notion of number plays a crucial role. One of the anonymous reviewers has pointed out that the same is true for the examples of *which*-questions that I cite in Sect. 2, and that the existential presupposition of the *wh*-restrictor is lifted or nonexistent there as well. I believe this is correct. Again, this is grist for the mill of the standard monotonicity account. Of course, there are many problems with that account (cf. e.g. von Fintel 1999; Giannakidou 2008 for an overview of the problems, and some proposals for solving it), but whatever its shortcomings, failing to come to grips with a number-based distinction does not appear to be one of them.

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