

Squat, zero and no/nothing: Syntactic negation vs. Semantic negation*

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1. Introduction

In this paper I will propose a distinction between syntactic and semantic sentential negation. I will motivate the distinction by discussing some core properties of three downward entailing quantifiers: *no/nothing*, SQUAT, and the numeral *zero*. The syntactic tests I apply to these quantifiers demonstrate that *no/nothing* can give rise to both syntactic and semantic sentential negation, whereas SQUAT and *zero* can only give rise to semantic sentential negation. Beghelli's (1995) clause structure for quantifier scope will be used to capture the available scope positions for these quantifiers based on their syntactic properties.

2. Prerequisites

2.1. SQUAT

The terms 'squatitive negation' (Horn 2001) or 'SQUAT' for short (Postal 2004), refers to a class of taboo words that can be used to express negation, as shown in (1). Postal (2004) and Horn (2001) discuss the use of SQUAT (as a class) as a bare noun (BN-SQUAT). Postal (2004) provides a list of squatitive items; his list is reproduced in (2), with some extra British English taboo-words (McCloskey 1993) with similar use added.

- (1) Claudia saw squat. = 'Claudia saw nothing.'
(2) SQUAT = squat, fuck-all, beans, crap, dick, diddley, diddley-poo, diddley-squat, jack, jack-shit, jack-squat, piss-all, poo, shit, shit-all, sod-all, bugger-all, naff-all, crap-all.

Neither Postal nor Horn mention the use of SQUAT as a determiner (from now on referred to as 'D°-SQUAT'), as illustrated in (3).ⁱ

- (3) John bought fuck-all books. = 'John bought no books'

In this paper I will use examples with both BN- and D°-squat.

2.2. Downward entailing quantifiers

No/nothing, SQUAT (as a class) and *zero* can be semantically classified as downward entailing quantifiers (DE-quantifiers), i.e. quantifiers that denote a monotone decreasing function and thus introduce contexts that support inferences from sets to subsets (Ladusaw 1980; van der Wouden 1994). In spite of the fact that they can be grouped under the same semantic label, the

application of two syntactic tests, discussed in 3, shows that there are important differences between them.

3. Syntactic sentential negation vs. semantic sentential negation

3.1. *Syntactic sentential negation: the question tag-test*ⁱ

In his seminal work on sentential negation Klima (1964) proposes a number of diagnostic tests to detect whether a sentence is negative (Neg-S) or affirmative (Aff-S). One of the tests is the question tag test: a prototypical Neg-S combines with a positive question tag, an Aff-S combines with a negative question tag, as illustrated in (4) and (5).

- (4) John did not buy a book, did/*didn't he?
- (5) John bought a book, didn't/*did he?

The question-tag test thus tests the syntactic polarity of the sentence. I use the test to see whether the quantifiers under discussion can give rise to syntactic sentential negation, i.e. whether their presence in the sentence leads to positive question tags and thus to a Neg-S. In what follows I discuss the question tags for *no/nothing*, SQUAT and *zero* in object position and subject position.

In object position, sentences containing BN-SQUAT and D^o-SQUAT take negative tags and are thus Aff-S:

- (6) a. Janet read squat, *did she/didn't she? (Aff-S)
- b. Janet read fuck-all books, *did she/ didn't she? (Aff-S)

Similarly, *zero* in object position takes negative question tags and gives rise to Aff-S, cf. (7).

- (7) Janet read zero books, *did she/?/didn't she? (Aff-S)

The tags associated with sentences containing *no/nothing* in object position tend to be negative, indicating the sentence is Aff-S, as illustrated in (8).ⁱⁱⁱ

- (8) a. John bought no book, ?*did he/didn't he? (Aff-S)
- b. John bought nothing, ?*did he/ didn't he? (Aff-S)

Considering the literature on negation, this fact has not been discussed often (apart from Moscati 2006:87, 2010; MacCawley 1988 and Ross 1973) and mostly it has been taken for granted that *no/nothing* in object position leads to a Neg-S (Klima 1964, Postal 2004).^{iv}

In subject position both BN-SQUAT and D^o-SQUAT give rise to negative tags and thus to Aff-S.^v

- (9) a. Fuck-all happened, *did it/ didn't it? (Aff-S)
 b. Fuck-all men love her, *do they/don't they? (Aff-S)

Zero in subject position also comes with negative question tags, indicating it is an Aff-S.

- (10) Zero people love her, *do they/don't they? (Aff-S)

No and *nothing* in subject position systematically give rise to positive tags and thus to Neg-S, cf. (11).

- (11) a. Nothing could refute that argument, could it/*couldn't it? (Neg-S)
 b. No men love her, do they/*don't they! (Neg-S)

Taking into account the results of the question tag-test, I will label SQUAT and *zero* non-negative DE-quantifiers and *no/nothing* negative DE-quantifiers. This classification goes back to Beghelli (1995), who divides DE-quantifiers into non-negative and negative DE-quantifiers.

Summarizing, the question tags suggest that SQUAT and *zero* are similar in that they can never give rise to a Neg-S, neither in subject position nor in object position, whereas *no/nothing* always gives rise to a Neg-S in subject position and usually to an Aff-S in object position. There is thus a subject-object asymmetry with *no/nothing* when it comes to question tags.

3.2. *Semantic sentential negation or negative scope*

3.2.1. *DE-quantifiers and semantic sentential negation*

Modals interact scopally with negation (Palmer 1997; Iatridou & Zeijlstra 2009; Iatridou & Sichel 2010; Breitbarth to appear). (12) illustrates how negation takes wide scope over possibility modal *could*, i.e. the modal is interpreted under negation whereas it surfaces higher than negation. The opposite, i.e. narrow scope of negation, is true with certain necessity modals (Iatridou and Zeijlstra 2009).^{vi}

- (12) He could not buy any books (the shop was closed).
 (Neg > Mod)
 = It was not possible for him to buy any books.
 ≠ It was possible for him not to buy any books.

When quantifiers interact with modals, not only wide or narrow scope of negation is possible, but also split scope, i.e. the quantifier can be 'split' into a negative component that is interpreted over the modal and an indefinite component that is interpreted below it. In spite of the fact that only *no/nothing* is a negative DE-quantifier, SQUAT and *zero* also turn out to be able to interact with modals in the same way as verbal negators do, thus supporting de Swart's

(2000) claim that split scope is a property of all DE-quantifiers. (13) shows the DE-quantifiers SQUAT, *zero* and *no/nothing* in interaction with possibility modal *could*: both wide scope and split scope readings are accepted.

- (13) He could buy fuck all/ zero/ no books
 = No books are such that it was possible for him to buy them. (wide scope, Neg> Mod)
 = It was not possible for him to buy any books.
 (split scope, Neg> Mod> Ind)
 ≠ It was possible for him not to buy any books.
 (narrow scope, Mod>Neg)

The split scope reading is definitely the most natural reading for speakers of English (de Swart 2000).^{vii} Crucial in (13) is that the negative interpretation outscopes the modal verb, on a par with the interaction between *not* and *could* seen in (12).

Summarizing, the scope interactions with possibility modal *could* show that all DE-quantifiers, including those that never trigger affirmative tags and hence are non-negative, can scope over the modal in the same way as the verbal negator *not* does, i.e. they can all lead to semantically negative interpretations. This conclusion is in line with de Swarts' (2000).

The contrast that arose between SQUAT/*zero* on the one hand and *no/nothing* on the other hand when it comes to syntactic sentential negation (cf. section 3.1) disappears completely when it comes to semantic sentential negation: all three quantifiers can give rise to semantic sentential negation (or split scope). However, even this is not yet the full picture. We have not yet looked at narrow scope of the quantifier. That will be done in the next section.

3.2.2. DE-quantifiers and narrow scope

The question tag test showed that all three quantifiers could give rise to an Aff-S and all three can give rise to split scope readings. This leads to the expectation that all three of them, in a specific context could also lead to a narrow-scope interpretation, i.e. with the quantifier interpreted in situ, i.e. within the VP. However, an example as (14) shows that this is not the case: *no* and *zero* can be interpreted below root possibility modal *could*, but SQUAT cannot get this low interpretation in exactly the same context.

- (14) Context: A friend giving another friend advice for a diet^{viii}:
 You could eat *zero/ no/ *fuck-all* sweets.
 = It is a possibility/ an option to eat no sweets.

(14) shows that SQUAT cannot take narrow scope in a context that is compatible with narrow scope for *zero* and *no*. As such, the parallel between SQUAT and *zero* as established in section

3.1 seems disrupted here and rather *zero* and *no/nothing* seem to have something in common, i.e. the ability to allow an in situ, i.e. cardinal, interpretation of the quantifier.

3.3. Conclusion

When it comes to the distribution of question tags and thus to diagnosing the syntactic polarity of a sentence, *SQUAT* and *zero* are shown to give rise to Aff-S and *no/nothing* can give rise to Neg-S in subject position, but usually not in object position. When it comes to their scopal properties, *SQUAT*, *zero* and *no/nothing* can all three give rise to split scope readings with possibility modal *could*, i.e. to semantic sentential negation. However, in contexts that allow narrow scope for *zero* and *no/nothing*, *SQUAT* is ungrammatical, pointing to the fact that these quantifiers do not only differ along the negative/non-negative axis, as was shown with the question tag test, but that more is at stake here. These findings are summarized in table 2.

Table 2

TESTS		<i>no/nothing</i>	<i>SQUAT</i>	<i>zero</i>
Positive tags (= Neg-S)		✓	-	-
Scope	Split scope	✓	✓	✓
	Narrow scope	✓	-	✓

4. Analysis

The analysis wants to account 1) for how syntactic sentential negation arises, i.e. how do the different tags arise and 2) how semantic sentential negation, i.e. wide and split scope readings, can arise.

4.1. Syntactic sentential negation

Syntactic sentential negation or negative polarity is the consequence of an Agree-relationship between negative polarity features on the quantifier and unvalued polarity features on C° . C° is endowed with an interpretable unvalued polarity feature, i.e. [iPol:_] (Pesetsky and Torrego 2007; Tubau 2008; Bošković (to appear)), indicating that a clause is always interpretable for polarity (Moscato 2006, 2010; McCloskey 2011). The negative DE-quantifiers *no/nothing* have [uPol:Neg], which means they are syntactically valued for negation, but not yet interpretable as negative. Under the Phase Impenetrability Condition I (Chomsky 2001), C° cannot Agree (Zeijlstra 2004; Pesetsky&Torrego 2007; Haegeman&Lohndal 2010) with negative features on negative quantifiers in object position, i.e. within vP. Therefore, C° gets a default affirmative valuation, i.e. [iPol:Aff], explaining why the tags are usually negative with *no/nothing* in object position. However, when negative quantifiers occur in subject position, Agree is always possible under PIC I and C° gets [iPol:Neg]. Positive tags are the only option then, thus explaining the subject-object asymmetry with question tags.^{ix} Non-negative DE-quantifiers, like *SQUAT* and *zero*, can only value [iPol:_] on C° as Aff, thus explaining why they always give rise to negative tags and Aff-S.

4.2. *Semantic sentential negation: towards an analysis*

The fact that downward entailing quantifiers like SQUAT, *zero* and *no/nothing* can be interpreted in a higher position than where they surface and thus give rise to semantic sentential negation, irrespective of the question tags they take, must be the consequence of the fact that all quantifiers can undergo covert A'-movement and adjoin to a higher projection as a result of quantifier raising (QR) (May 1985; Aoun & Li 1989; Beghelli 1995; Ruys 1997). Beghelli (1995) proposes a cartography of designated scope positions in order to account for the fact that not all scope positions are available to all quantifiers, a fact which is ignored in traditional QR-approaches. Beghelli (1995) assumes a standard 'split infl' hypothesis, i.e. AgrSP, TP, NegP and AgrOP, enriched with AgrXPs for case checking purposes (Hornstein 1994) and three extra target landing sites: a distributive projection (DistP), an existential projection (ShareP) and a referential projection (RefP). The standard treatment of how wh-quantifiers (WhQP) (Rizzi 1990, 1996; Haegeman 1995) and negative quantifiers (NQP) (Laka 1990, Zanuttini 1991, Haegeman 1995) take scope is the model for Beghelli's proposal. Beghelli distinguishes three other groups of quantifier types that have designated landing sites: (i) Group-denoting QPs (GQPs) such as *some*, *several*, *two students*, *these students*, etc. introduce group variables and must be bound by an existential operator. This operator is available both in ShareP and RefP. When in SpecShareP, GQPs realize the semantic feature of having a group referent, whereas in SpecRefP they are the subject of predication. (ii) Counting QPs (CQPs), such as *few men*, *between six and nine students*, etc. count individuals with a given property and get an *in situ* interpretation, i.e. they only move to their case position, SpecAgrOP or SpecAgrIOP (cf. Hornstein 1994); (iii) Distributive-Universal QPs (DQPs) such as *each* and *every* take scope in DistP. All quantifiers with their possible target landing sites are given in (15).

- (15) [RefP GQP [CP WhQP[AgrSP CQP [DistP DQP [ShareP GQP [_{NegP} NQP [_{AgrOP} CQP [_{VP} (CQP)]]]]]]]]]]

No/nothing is normally considered an NQP, which moves to SpecNegP to check off a negative feature (Haegeman 1995) in order to give rise to syntactic sentential negation. However, under such an approach it cannot be explained why the tags for *no/nothing* in object position are usually negative, giving rise to Aff-S. Therefore, I propose that *no/nothing* is usually (cf. endnote ix) a negative CQP, much in line with Déprez (1997, 2000). CQPs are interpreted in situ, giving rise to a cardinal reading for *no/nothing* in object position. SQUAT patterns differently: while it always gives rise to Aff-S, it cannot get the in situ, i.e. narrow, cardinal interpretation associated with CQPs.^x I therefore propose that in terms of Beghelli's classification, SQUAT is a GQP, which always moves to a position where it can bind its group variable, i.e. in ShareP or RefP. The fact that many SQUAT items contain the quantifier *all*, as in *fuck-all*, *bugger-all*, *sod-all*, ... supports the assumption that SQUAT is a group-denoting quantifier. Being a numeral, *zero* can definitely be considered a CQP and get an in situ interpretation. However, since *zero* can also give rise to split scope readings, it cannot only be

a CQP, since CQPs do not take scope. *Zero* must thus be able to at least move to ShareP. Evidence for the assumption that *zero* is also a GQP comes from the fact that *zero* always takes a plural or collective noun, again pointing to the fact that it can get a group interpretation. Table 3 summarizes the classification and hence the scope positions of the quantifiers under discussion.

Table 3

	CQP	NCQ	GCP
SQUAT	-	-	✓
no/nothing	✓	✓	-
zero	✓	-	✓

5. Conclusion

This paper identified some distributional and interpretive properties of three downward entailing quantifiers: *no/nothing*, SQUAT and *zero*. By looking at the question tags these quantifiers give rise to on the one hand and the scopal interactions with modals on the other hand, this paper showed that a distinction between syntactic sentential negation and semantic sentential negation is relevant. Only *no/nothing* gives rise to syntactic sentential negation by valuing [iPol:_] on C° as negative, but all three of them can give rise to semantic sentential negation, i.e. to split scope readings with modal verbs. Finally, by means of Beghelli's cartography of scope, this paper established that SQUAT, unlike *no/nothing* and *zero* cannot get a cardinal, in situ, interpretation and is not a CQP. Being solely a GQP it always needs to move to a designated scope position.

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‘This work is funded by FWO grant 2009-Odysseus-Haegeman-G091409, funding the project “Layers of structure” at Ghent University. I am grateful to my supervisor, Liliane Haegeman and co-advisors Guido Vanden Wyngaerd, Jeroen van Craenenbroeck and Anne Breitbarth, for their encouragement, comments and help, and to my English informants Rachel Nye, William Harwood and Reiko Vermeulen for their patience and care in providing me with judgments.

ⁱ It is crucial to distinguish SQUAT as a class of taboo-words from the taboo item *squat*. *Squat* is American English and was used by Postal (2004) in many of his examples. The item gave its name to the entire class of taboo-words. My British English informants do not use the lexical item *squat* as a downward entailing quantifier, but use *fuck-all*, *sod-all* or *bugger-all* instead. The latter can be used as a determiner, whereas the taboo-word *squat* can – for reasons not clear to me - never be used as a determiner.

ⁱⁱ There are two kind of tags: 1) question tag or reversal tags (McCawley 1988) and 2) reduplicative tags or same-way tags (Swan 2005). Question tags reverse the polarity of the matrix clause and usually check for information. Reduplicative tags reduplicate the polarity of the matrix clause and are thus only possible with Aff-S. They signal the speaker’s conclusion by inference or his sarcastic suspicion (Quirk et al. 1985). “Oh so” can precede sentences with reduplicative tags (Quirk et al 1985: 810-813). It is important to keep the tags apart, because mixing them up leads to different results. Confusion with the tags has led to the wrong conclusions about the polarity quantifiers give rise to.

ⁱⁱⁱ I am aware that it has been reported by some native speakers of English that they have positive tags with *no/nothing* in object position. I have not yet been able to establish whether this is due to the fact that they are mixing up the two kinds of tags, or whether there is genuine variation with respect to tagging. It is definitely the case that *no/nothing* in object position gives rise to positive tags with certain modal verbs, e.g. with *could* (1) and not with *should* (2). I will come back to this in future work.

(1) He could use no credit cards in that shop, ??could he/ ?couldn't he?

(2) He should drink no beer, *should he/ shouldn't he?

^{iv} Some scholars, e.g. Moscati (2006:87, 2010); MacCawley (1988) and Ross (1973), report that *no/nothing* in object position does not always lead to Neg-S. However, all of them claim that both tags are possible, positive tags and negative tags. In reality though, and after careful testing, it turns out that the negative tags with *no/nothing* in object position are the questions tags and the positive tags are the reduplicative tags (i.e. they can be preceded by ‘oh so’).

^v BN-squat can only occur as the subject of unaccusative and passive verbs (McCloskey 1993). D°-squat on the other hand can occur with all verbs.

^{vi} It is beyond the scope of this paper to discuss the interaction between modals and negation.

^{vii} It is hard to get truth-conditional differences between the wide scope reading and the split scope reading. Partitive constructions with SQUAT and *no/nothing* can give rise to natural wide-scope readings. For reasons of space I cannot go deeper into these examples.

^{viii} I want to thank Caroline Heycock for her judgments and for drawing my attention to these data.

^{ix} Under the influence of certain modal verbs, i.e. another scope bearing element, *no/nothing* can take scope in a higher projection, probably NegP or PolP, and thus behave as a NQP. This allows C° to get valued as negative and to give rise to positive tags and Neg-S (cf. Moscati 2006; 2010). Moreover, it also allows split scope readings for *no/nothing*. However, it is beyond the scope of this paper to go deeper into the precise mechanisms underlying the interaction between modals and quantifiers.

^x Based on the negative tags Postal (2004) analyzed SQUAT on a par with the numeral *zero*. However, he did so without distinguishing between the two readings for *zero*.