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N-words and sentential negation: Evidence from polarity particles and VP ellipsis*

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Abstract A prominent treatment of n-words such as *nobody* and *never* is as indefinite expressions occurring in the scope of a covert sentential negation operator. This paper presents three experiments using two novel strategies based on polarity particles and VP ellipsis to test the predictions of this treatment of n-words. The first experiment tests a particular prediction of recent accounts of polarity particles with respect to agreeing responses to negative assertions. The other two extend the inquiry to cases involving n-words.

Keywords: N-words, negation, polarity particles, VP ellipsis.

1 Introduction

This paper is concerned with the relationship between sentences containing n-words, such as *nobody* and *never*, exemplified in (1), and sentences containing a sentential negation operator realized by the clausal negation morpheme *not* or its contracted form *n't*, exemplified in (2). For brevity, we will refer to the latter type of sentences simply as *negative sentences*.

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(1) a. *Nobody* stepped forward.
b. Susan *never* saw this movie.

(2) a. Susan did*n't* step forward.
b. Susan did*n't* see this movie.

In particular, we will consider the hypothesis that n-words are indefinite expressions occurring in the scope of a sentential negation operator. Under this hypothesis, the sentences in (1) and (2) have very similar logical forms, each containing a sentential negation operator. For instance, the presumed logical forms of (1a) and (2a) are those given in (3a) and (3b) below, where NEG denotes the sentential negation operator.

(3) a. NEG (someone stepped forward)
b. NEG (Susan stepped forward)

The hypothesis that n-words are indefinite expressions in the scope of a sentential negation operator is characteristic for the so-called *negative indefinite (NI) approach* to n-words, rooted in the work of Klima (1964) and further pursued by Ladusaw (1992), Zeijlstra (2004), Penka (2007, 2011), Tubau (2008), among others.[1]

In support of the NI approach, Klima notes that sentences with n-words behave just like negative sentences with respect to tag constructions and NPI licensing, illustrated below:

(4) a. Maria *didn't* talk about Tom, *did* she?
b. Maria *never* talked about Tom, *did* she?
c. Maria *always* talked about Tom, *didn't* she?

(5) a. Tom *didn't* lift a finger to help.
b. Tom *never* lifted a finger to help.
c. *Tom *always* lifted a finger to help.

Further empirical arguments for the NI approach involving split scope constructions and negative concord phenomena have been given in the more recent work cited above. The goal of this paper is to provide two further tests

1 The account of negation and n-words in de Swart & Sag 2002 does not belong to the NI approach. However, on this account the sentence types in (1) and (2) are unified as well in that they are both taken to involve the same polyadic negative quantifier, the only difference being the addicity of this quantifier. As a result, the account makes the same predictions as the NI approach as far as the data presented in this paper are concerned.

of the central hypothesis of the NI approach concerning the relationship between n-words and sentential negation, both involving *discourse* phenomena.

The first test is based on the distribution of English polarity particles (**yes** and **no**) in reactions to negative vs. positive assertions. It has been noted at least since Pope 1976 that the presence of sentential negation affects the distribution of these particles in agreeing responses to a previously made assertion or polar question. More precisely, the observation is that in agreeing responses to positive assertions, only **yes** can be used, while in agreeing responses to negative assertions, both **yes** and **no** can be used, as illustrated in (6) and (7) below (Ginzburg & Sag 2000, Kramer & Rawlins 2009, Farkas 2011, Holmberg 2012, Cooper & Ginzburg 2012, Farkas & Roelofsen 2012).

(6) A: Paul stepped forward.
B: Yes / *No, Paul stepped forward.

(7) A: Paul did not step forward.
B: Yes / No, Paul did not step forward.

Given this contrast between positive and negative sentences, the NI approach predicts that sentences with n-words will pattern with negative sentences like (7) rather than with positive sentences like (6), and therefore that both **yes** and **no** will be licensed in (8) and (9).[2]

(8) A: Nobody stepped forward.
B: Yes / No, nobody stepped forward.

(9) A: Susan never saw this movie.
B: Yes / No, Susan never saw this movie.

We report here on two experiments that test:

i. whether sentential negation indeed affects the distribution of polarity particles as indicated in (6) and (7) — Experiment 1, in section 3;

ii. whether the prediction made by the NI theory concerning cases like (8) and (9) is indeed borne out — Experiment 2, in section 4.

2 To the best of our knowledge, this prediction has not been discussed explicitly in previous work within the NI approach. However, the claim that sentences with n-words behave like negative sentences w.r.t. polarity particle licensing has been made previously, in particular by Ginzburg & Sag (2000: 439), who assume that n-words and sentential negation both involve the same polyadic negative quantifier (de Swart & Sag 2002).

Besides the prediction that the NI theory makes concerning polarity particle responses, we also tested a prediction that the theory makes concerning *VP ellipsis* in responses. Consider the following contrast:

(10) A: Mary visited some of the children.
B: I agree, she did / *didn't.

(11) A: Mary didn't visit any of the children.
B: I agree, she *did / didn't.

The generalization that emerges from these examples is that an agreeing VP ellipsis response to a positive assertion must have a positive auxiliary, while an agreeing VP ellipsis response to a negative assertion must have a negative auxiliary.

Again, given this contrast between positive and negative sentences, the NI approach predicts that sentences with n-words like (12) pattern with negative sentences like (11) rather than with positive sentences like (10):

(12) A: Mary visited none of the children.
B: I agree, she *did / didn't.

We present an experiment that tests whether cases like (12) indeed behave similarly to cases like (11), as expected on the NI approach — Experiment 3, in section 5 below.

The paper is structured as follows. Section 2 introduces the experimental method used for all three experiments. As already indicated, Experiments 1, 2 and 3 are introduced, analyzed and discussed in sections 3, 4 and 5, respectively. The final section 6 provides a brief conclusion and outlines some future research directions. The items for all experiments are provided in appendix A.

2 Experimental method

All three experiments were run together as part of the same online questionnaire. The items for all three experiments were randomly selected from the Brown Corpus and the Corpus of Contemporary American English and simplified in various ways (shortened etc.).

A total of 53 undergraduate UCSC students completed the online questionnaire for extra-credit. One participant was dropped because her/his pattern of responses for the control / reference-level condition in Experiment

1 was very different from the pattern of all the other participants and strongly indicated that the participant randomly selected the answers; we discuss this in more detail in section 3 below. The results reported in the paper are statistically significant whether this participant is included or not. Final number of participants: 52.

Between them, the three experiments provided a variety of stimuli: different kinds of quantifiers (referential NPs, existentials, downward entailing and non-monotonic quantifiers, n-words) were presented in subject or direct object position. The answers had a variety of structures: with or without VP ellipsis, with the (dis)agreement marker (polarity particle or *I (dis)agree*) preceding or following the sentence. Seven fillers in which the responses disagreed with the stimulus were also included.

Every participant saw any given item at most once. The order of the stimuli (both items and fillers) was randomized for each participant and the order of the two possible responses (**yes** vs. **no**) was randomized for each stimulus and for each participant.

The following sections present more details about each experiment.

3 Experiment 1: Polarity particle distribution

Experiment 1 is designed to test two empirical claims that have been made in the literature on polarity particles (Ginzburg & Sag 2000, Kramer & Rawlins 2009, Holmberg 2012, Farkas & Roelofsen 2012):[3]

i. In agreeing responses to positive assertions, only **yes** can be used;

ii. In agreeing responses to negative assertions, both **yes** and **no** can be used.

3 Strictly speaking, Ginzburg & Sag (2000), Kramer & Rawlins (2009), and Holmberg (2012) only make the claim considered here with reference to positive and negative *polar questions*, not with reference to positive and negative *assertions*. Farkas & Roelofsen (2012) explicitly generalize over both assertions and polar questions. We focus here on assertions in order to avoid the complications concerning 'high' and 'low' negation in polar questions in English, illustrated in (i) and (ii) below.

(i) Didn't Paul step forward? [high negation polar question]

(ii) Did Paul not step forward? [low negation polar question]

Method. We used online questionnaires to test people's preferences for the particle **yes** or **no** when they agree with a previously made assertion. Two typical experimental items are provided below:

(13) This substance will prevent the clay from twisting. [stimulus]
  a. Yes, it will. [response option 1]
  b. No, it will. [response option 2]

(14) At most six volunteers did not sign up for free housing. [stimulus]
  a. Yes, at most six of them didn't. [response option 1]
  b. No, at most six of them didn't. [response option 2]

The dependent variable RESP encodes the choice of polarity particle in responses — factor with 2 levels: **yes**, **no**; 'success' level: **yes**.

The three independent variables are as follows.

First, STIM-POL encodes the polarity of the stimulus — factor with 2 levels: **pos**, **neg**; reference level: **pos**. If the stimulus is positive, we expect the participants to overwhelmingly signal agreement with **yes**; if the stimulus is negative, we expect the participants to signal agreement with either **yes** or **no**.

Second, NP-TYPE encodes the type of subject NP in the stimulus — factor with 4 levels: **ref**, **atmost**, **exactly**, **some**; reference level: **ref**. All stimuli have the structure 'subject + predication'. The subject NPs are referential or quantificational with 3 possible determiners: *some*, *at most n* and *exactly n*. We are interested in whether the referential vs. quantificational nature of the subject NPs and their monotonicity properties affect particle choice.

Finally, PART-POS encodes the position of the polarity particle in the response — factor with 2 levels: **ini**, **fin**; reference level: **ini**. The particle is placed either at the beginning of the response or at the end.

Item (13) above exemplifies the combination STIM-POL = **pos**, NP-TYPE = **ref**, PART-POS = **ini**, while item (14) exemplifies the combination STIM-POL = **neg**, NP-TYPE = **atmost**, PART-POS = **ini**.

For each of the $16 = 2 \times 4 \times 2$ combinations, 3 items were generated for a total of 48. For each participant, we randomly selected 1 item for each of the 16 combinations, resulting in 53 participants $\times$ 16 = 848 observations.

One participant, coded `subj17`, exhibited a pattern of responses to positive polarity stimuli, i.e., to the control / reference-level polarity, that was distinct from all the other participants. Each participant was presented with

8 positive polarity stimuli. When responding to these stimuli, 44 participants chose only **yes** responses, i.e., 44 participants had 0 **no** responses out of 8; 6 participants had 1 **no** response out of 8 and 2 participants had 2 **no** responses out of 8. In contrast, `subj17` had 5 **no** responses out of 8.

Furthermore, when examining only the 4 referential or existential positive polarity stimuli, 50 participants had 0 **no** responses out of 4 and 2 participants had 1 **no** response out of 4, while `subj17` had 3 **no** responses out of 4.[4] Thus, the pattern of responses exhibited by `subj17` is very different from the pattern exhibited by all the other participants in the control / reference-level polarity. Given our prior knowledge about coherent responses to positive polarity stimuli and the highly homogeneous pattern of responses exhibited by all the other participants (which is in line with our prior knowledge), we conclude that `subj17` did not actually complete the experiment but likely selected the answers at random. We will therefore exclude this participant from all three experiments. As already mentioned, the reported results remain significant whether this participant is excluded or not.

The final number of observations for Experiment 1 is $N = 52 \times 16 = 832$.

3.1 Results

Barplots of responses by STIM-POL and by NP-TYPE are provided in Figure 1, as well as a mosaic plot of responses by NP-TYPE & STIM-POL combinations. The main observation confirms our overall expectation: when the stimulus is positive, the response particle is overwhelmingly **yes** and when the stimulus is negative, the response particle is either **yes** or **no**.

We also see that when the stimulus is negative and the subject NP is referential, there is a preference for **no**. In contrast, when the stimulus is negative and the subject NP is *at most n* or *exactly n*, there is a preference for **yes** while a negative stimulus with a *some* subject NP exhibits no particular preference for either **yes** or **no**.[5]

4 These 3 items and the **no** responses selected by `subj17` are as follows: (a) *This substance will prevent the clay from twisting.* *No, it will*; (b) *Some of the people that Luce hired saw the world differently.* *No, some of them did*; (c) *Some of the stories reported by the liberal media will likely cause broad public discussion.* *Some of them will, no.* These **no** responses are incoherent, in contrast to the alternative **yes** responses that pretty much all the other participants selected.

5 At this point, we do not have an explanation for these fine-grained differences between the different kinds of subject NPs. Since these differences are not directly relevant to the goals of this paper, we will not discuss them further.

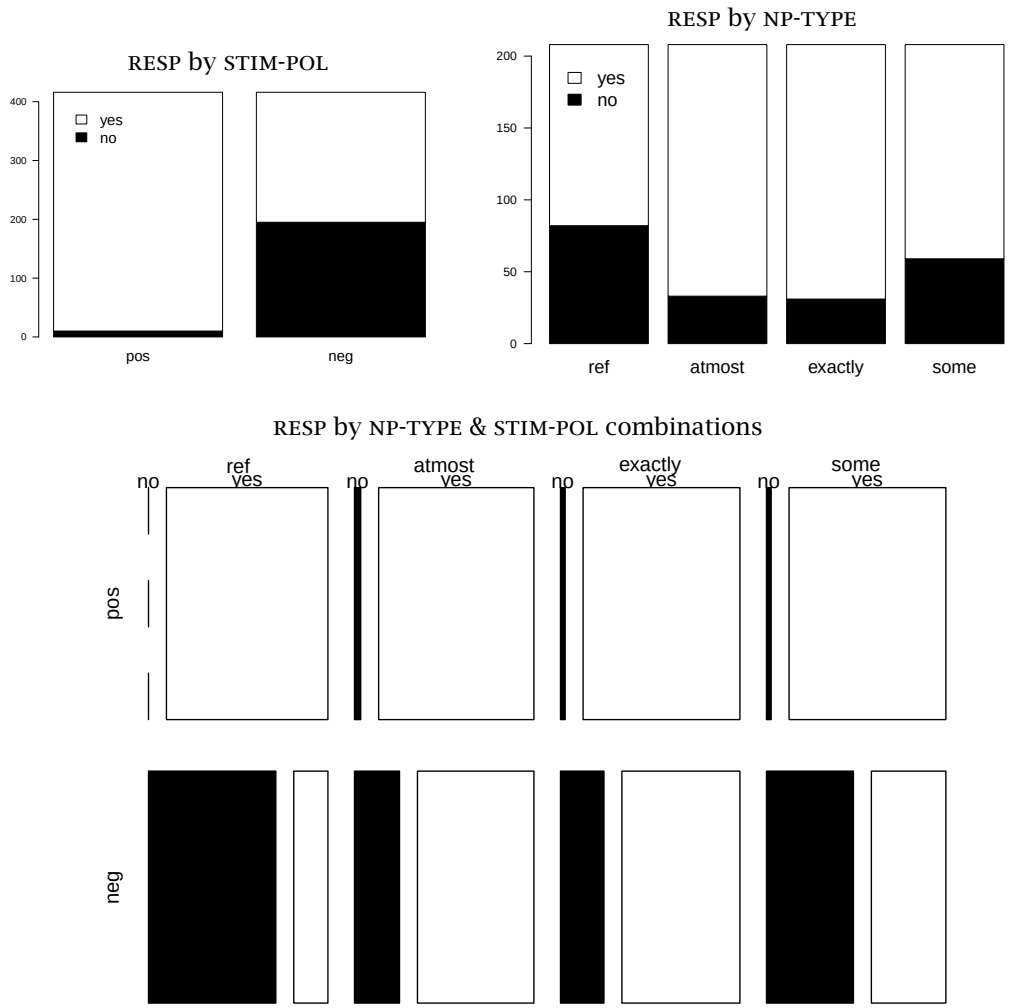

Figure 1 Experiment 1: Barplots of responses for the 2 stimulus polarities and the 4 NP types, and mosaic plot of responses for the 8 NP type & stimulus polarity combinations.

Finally, the position of the particle in responses, e.g., *Yes, it will* vs. *It will, yes*, was irrelevant for the choice of polarity particle, so we did not provide the corresponding plot. This is as expected: particle choice was not predicted to depend on particle position.

3.2 Statistical analysis

Given that the dependent variable RESP is categorical and, more precisely, binary, we use mixed-effects logistic regression models to analyze the data. In addition to fixed effects, i.e., our STIM-POL and NP-TYPE manipulations, we will have random effects for subjects. The random effects for subjects are intended to factor out the variability in responses between subjects; whatever variability remains can be more confidently attributed to the experimental manipulations. The items did not account for any variability in this experiment, so we do not include item random effects in any of the models we discuss.

When the stimulus polarity is **pos**, most counts are 0 or extremely low. This makes the usual frequentist procedures for obtaining the maximum likelihood estimates (MLEs) and their associated confidence intervals (e.g., the ones implemented by the function `glmer()` in the R package `lme4`) less reliable. However, we can still reliably estimate the posterior distribution of a Bayesian model that has the same likelihood structure and vague / low-information priors.

In particular, the mixed-effects logistic regression model that we will use to estimate the fixed effects and extract statistically significant empirical generalizations has the following structure:

- fixed effects: STIM-POL, NP-TYPE and their interaction;
- random effects: correlated subject random effects for the intercept and the STIM-POL-**neg** slope.

The priors for the fixed effects, i.e., for the intercept and the non-reference levels of STIM-POL, NP-TYPE and their interaction, are all independent normals $N(0, 10^2)$. These priors place most of their probability on the interval $(-20, 20)$, which is a very wide interval on the standard logit scale. Therefore, the priors contribute very little information and the posterior estimates will overwhelmingly reflect the data.

The prior for the random effects will be similarly vague / low information: we assume a bivariate normal distribution for the intercept and STIM-POL-**neg** random effects with correlation ρ between the two random effects $N\left(\begin{bmatrix}0\\0\end{bmatrix}, \begin{bmatrix}\sigma^2 & \rho\sigma\tau\\ \rho\sigma\tau & \tau^2\end{bmatrix}\right)$. The priors for the intercept standard deviation σ and the STIM-POL-**neg** standard deviation τ are independent uniforms $Unif(0,10)$ and the prior for ρ is $Unif(-1,1)$.

Table 1 provides the estimated means, standard deviations and 95% credible intervals (CRIs) for the posterior distributions of the random and fixed effects.[6]

RANDOM EFFECTS		mean	std.dev.	95% CRI
	σ	0.978	0.661	$(0.057, 2.570)$
	τ	1.614	0.591	$(0.568, 3.025)$
	ρ	-0.262	0.500	$(-0.906, 0.866)$
FIXED EFFECTS		**mean**	**std.dev.**	**95% CRI**
	INTERCEPT	7.104	1.874	$(4.228, 11.526)$
	STIM-POL-**neg**	-8.868	1.894	$(-13.296, -5.891)$
	NP-TYPE-**atmost**	-3.249	1.849	$(-7.561, -0.268)$
	NP-TYPE-**exactly**	-2.877	1.898	$(-7.314, 0.218)$
	NP-TYPE-**some**	-2.903	1.873	$(-7.183, 0.201)$
	STIM-POL-**neg** : NP-TYPE-**atmost**	6.326	1.885	$(3.206, 10.676)$
	STIM-POL-**neg** : NP-TYPE-**exactly**	6.015	1.933	$(2.823, 10.474)$
	STIM-POL-**neg** : NP-TYPE-**some**	4.481	1.898	$(1.247, 8.805)$

Table 1 Experiment 1: Posterior means, standard deviations and 95% CRIs for the estimated mixed-effects logistic regression model.

We observe the following:

- the intercept (positive polarity sentences with referential subjects) indicates a highly significant preference for the particle **yes**;
- changing the polarity of the sentence while keeping the subject referential contributes a strong preference for the particle **no**, as expected; however, the particle **yes** is not ruled out, it is just dispreferred overall;

6 Details of the MCMC estimation: 3 chains, 275,000 iterations per chain, 25,000 burn-in, 100 thinning.

- for positive polarity sentences, changing the NP type of the subject diminishes the preference for **yes** compared to the preference for **yes** exhibited by positive sentences with referential subjects; however, this decrease is statistically significant only for downward-entailing (**atmost**) subjects — the 95% CRIs for **exactly** and **some** include 0;
- for negative polarity sentences however, all non-referential NP types contribute strong, statistically-significant preferences for the **yes** particle compared to referential NPs;
- this interaction of negative polarity and non-referential NP type was already visible in the mosaic plot in Figure 1 and it is not predicted by the theoretical literature to date; discovering new fine-grained generalizations of this kind is one of the contributions that experimental methods and statistical modeling can make to formal semantics.

The generalizations we have just outlined are more perspicuously reflected in Figure 2. This plot summarizes the posterior predictions of our model on the probability scale, which is more readily understandable than the logit scale that was used for the estimates in Table 1.

We display the median probabilities of a **yes** response and the associated 95% CRIs for all 8 combinations of NP type (**ref**, **atmost**, **exactly** and **some**) and stimulus polarity (**neg** and **pos**). This plot closely mirrors the data summary displayed in the mosaic plot above of RESP by NP-TYPE & STIM-POL combinations.

Finally, we note that the subject random effects for the STIM-POL-**neg** slope (not shown) do not display any clear clustering. This is partly a consequence of the small amount of data per subject, but one might have expected some small amount of clustering if there was a clear dialectal divide in the way subjects responded to negative stimuli — e.g., a dialect in which agreement with negative stimuli is always marked by **no** (or always marked by **yes**) and a dialect in which agreement is optionally marked by either **yes** or **no** and the choice between the two is not biased one way or another. The estimated slope random effects are fairly homogeneously spread between about -2 and 2 (on the logit scale) and do not suggest that any such dialectal difference is at work.

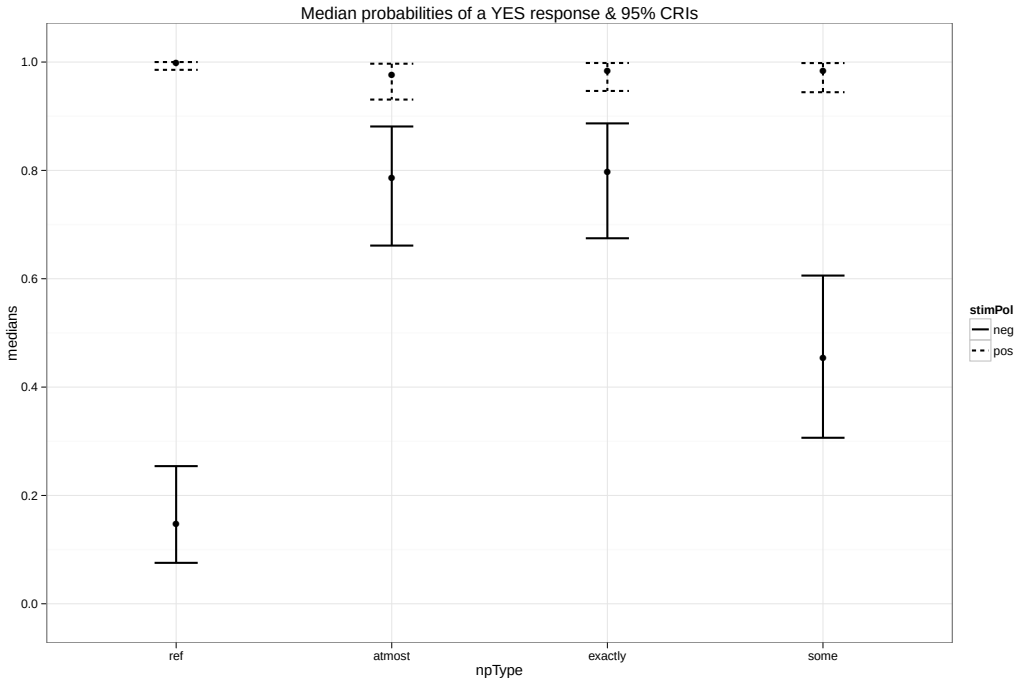

Figure 2 Experiment 1: Plot of posterior median probabilities of a **yes** response for the 8 NP type & stimulus polarity combinations and corresponding 95% CRIs.

3.3 Discussion

The results of this experiment confirm the hypothesis that the distribution of **yes** and **no** in agreeing responses is sensitive to the polarity of the stimulus: agreeing responses to positive assertions only license **yes** while agreeing responses to negative assertions license both **yes** and **no**. Although in the context of the present paper this result only plays a supporting role — given that we are mainly interested here in the relationship between n-words and sentential negation — it is also of independent interest, as it strengthens the empirical basis of several theories of polarity particle responses (Ginzburg & Sag 2000, Kramer & Rawlins 2009, Holmberg 2012, Farkas & Roelofsen 2012).[7]

7 These theories account for the pattern observed here in different ways, and make distinct predictions in other cases. We refer to Farkas & Roelofsen 2012 for further discussion and comparison. See also Jefferson 2002 for a corpus study whose findings are in line with the experimental result obtained here, although it focuses on polarity particle usages that are not exactly the same as the usage considered here.

Besides confirming the main hypothesis, the experiment also shows that there is a preference for **no** over **yes** in agreeing responses to negative assertions with referential subjects, and that this preference is neutralized by existential subjects and even reversed by downward monotonic and non-monotonic subjects. The preference for **no** over **yes** in the simplest cases, with referential subjects, is predicted by the theory of Farkas & Roelofsen (2012). However, the fact that this preference can be neutralized or even reversed by the presence of quantificational subjects is to the best of our knowledge not accounted for by any existing theory of polarity particles.

What is crucial for our current purposes is that the distribution of polarity particles in agreeing responses differentiates negative sentences from positive sentences. On the NI approach, sentences with n-words are expected to pattern with negative sentences rather than with positive sentences in this respect. We now turn to an experiment that tests whether this expectation is borne out.

4 Experiment 2: Polarity particles and n-words

Experiment 2 investigates whether sentences with n-words behave like negative sentences or like positive sentences with respect to the distribution of polarity particles in agreeing responses.

Method. Just as for Experiment 1, we used online questionnaires to test whether people prefer to use **yes** or **no** in agreeing responses to a previously made assertion. Three examples of experimental items are provided below:

(15) None of the local bookstores are hiring full-time. [stimulus]
   a. Yes, none of them are. [response option 1]
   b. No, none of them are. [response option 2]

(16) The Neanderthals never crossed the Mediterranean. [stimulus]
   a. Yes, they never did. [response option 1]
   b. No, they never did. [response option 2]

(17) Infants sometimes do not learn to speak before the age of four. [stimulus]
   a. Yes, they sometimes don't. [response option 1]
   b. No, they sometimes don't. [response option 2]

Just as before, the dependent variable RESP encodes choice of polarity particle in responses — factor with 2 levels: **yes**, **no**; 'success' level: **yes**.

We have two independent variables. First, STIM-TYPE (a factor with 3 levels: **somenot**, **none**, **some**; reference level: **somenot**) encodes the three types of stimuli we considered: (*i*) sentences with an existential and sentential negation (**somenot**); (*ii*) sentences with n-words but without sentential negation (**none**); and finally (*iii*) sentences with an existential and without sentential negation (**some**).

Thus, if the stimulus is positive (STIM-TYPE = **some**), we expect that agreement is generally signaled with **yes**. If the stimulus is negative (STIM-TYPE = **somenot**), we expect that agreement can be signaled with both **yes** and **no**. Crucially, we want to see whether sentences with n-words (STIM-TYPE = **none**) license both **yes** and **no** in agreeing responses, like negative sentences, or only **yes**, like positive sentences.

We selected negative sentences with existentials (**somenot**) rather than with referential NPs as the reference / comparison condition for the n-word condition of interest (**none**) in order to keep the differences between the n-word condition, which is quantificational, and the comparison condition to a minimum. However, as Experiment 1 showed, negative sentences with existentials do not behave exactly like negative sentences with referential NPs (the 'prototypical' negative sentences), so for completeness we should also compare n-words and negative sentences with referential NPs.[8] We leave this issue for a follow-up experiment.

The second independent variable is GRAM-FUN (grammatical function), encoding the fact that we considered both nominal and adverbial n-words. That is, GRAM-FUN is a factor with 2 levels: **S**(ubject), **A**(dverb); reference level: **S**.

The item in (15) above exemplifies the combination STIM-TYPE = **none** & GRAM-FUN = **S**. Item (16) exemplifies the combination STIM-TYPE = **none** & GRAM-FUN = **A**. Finally, item (17) exemplifies the combination STIM-TYPE = **somenot** & GRAM-FUN = **A**.

For each of the resulting $6 = 3 \times 2$ combinations, 3 items sentences were generated for a total of 18. For each participant, we randomly selected 1 item for each of the 6 combinations. Total number of observations: $N = 52 \times 6 = 312$.

8 We are grateful to Kai von Fintel for bringing this point to our attention.

4.1 Results

Barplots for responses by STIM-TYPE and by GRAM-FUN are provided in Figure 3, as well as a mosaic plot of responses by STIM-TYPE & GRAM-FUN combinations.

The main observation is that sentences with n-words license both **yes** and **no** in agreeing responses, just like negative sentences. In contrast, positive sentences only license **yes** in agreeing responses.

In addition, the mosaic plot indicates that the association between stimulus type and response particle does not vary by grammatical function: the pattern observed when aggregating over both **S** and **A** is the same as the patterns we observe when we look at them separately.

Finally, we note that n-word sentences (**none**) induce a stronger preference for **no** than negative sentences with existentials (**somenot**), while positive sentences with existentials (**some**) have a much stronger preference for **yes** than **somenot** sentences. These preferences seem to be slightly more pronounced for adverbs than for subjects.

4.2 Statistical analysis

We have two fixed effects, namely STIM-TYPE and GRAM-FUN, and we consider random effects for both subjects and items. The intercept or slope random effects for items and the slope random effects for subjects account for practically no variability in the response, so we omit them. Moreover, neither the interaction between GRAM-FUN and STIM-TYPE nor the main effect of GRAM-FUN are significant, so we omit them too.

The final mixed-effects logistic regression model that we use to derive the empirical generalizations has the following structure:

- fixed effects: STIM-TYPE;
- random effects: intercept random effects for subjects.

Just as before, we provide the Bayesian estimates of the posterior distributions for the fixed and random effects. Once again, we assume vague priors for the fixed effects: the priors for the intercept and the non-reference levels of STIM-TYPE are all independent normals $N(0, 10^2)$. Priors for random effects: we assume a normal distribution $N(0, \sigma^2)$ for the intercept random effects; the prior for the standard deviation σ is uniform $Unif(0, 10)$. Table 2

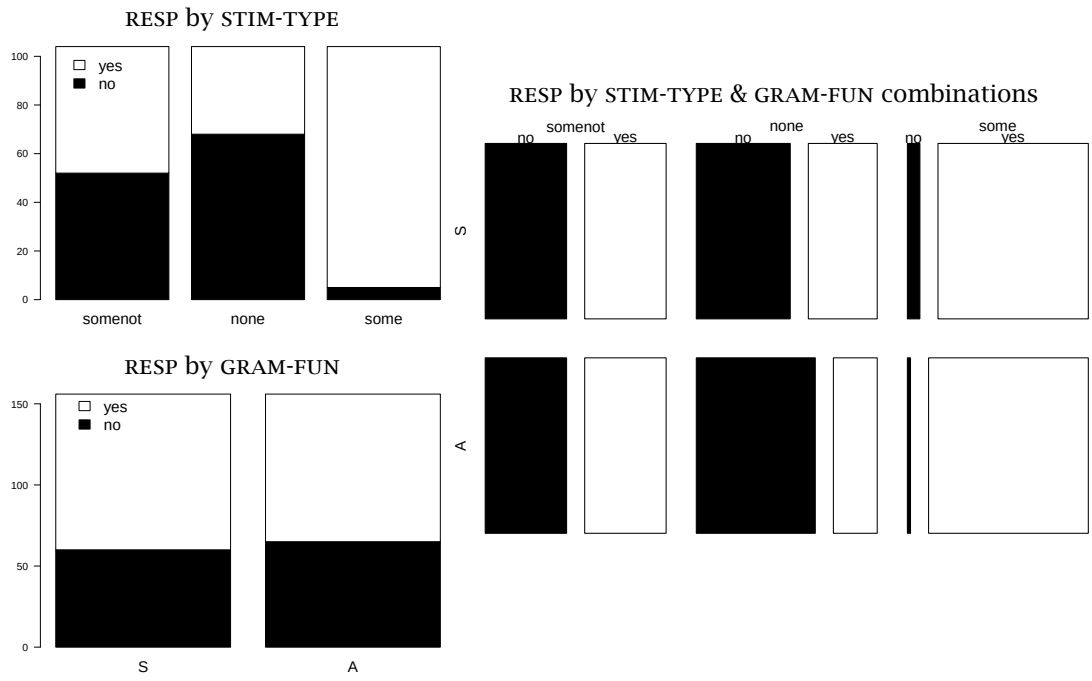

Figure 3 Experiment 2: Barplots of responses for the 3 stimulus types and the 2 grammatical functions, and mosaic plot of responses for the 6 stimulus type & grammatical function combinations.

provides the estimated means, standard deviations and 95% CRIs of the posterior distributions for the random and fixed effects:[9]
We observe the following:

- n-words (**none**) have a higher preference for **no** than even negative sentences with existentials (**somenot**, which is the reference level); this preference is statistically significant;
- the intercept is very close to 0 and not statistically significant: negative sentences with existentials (**somenot**) have no clear preference for **yes** vs. **no** (we obtained the same result in Experiment 1);
- finally, positive sentences with existentials (**some**) have a significantly higher preference for **yes** than negative sentences with existentials (**somenot**) (again, we obtained the same result in Experiment 1).

9 Details of the MCMC estimation: 3 chains, 225,000 iterations per chain, 25,000 burn-in, 200 thinning.

RANDOM EFFECTS		mean	std.dev.	95% CRI
	σ	0.726	0.299	$(0.094, 1.307)$
FIXED EFFECTS		**mean**	**std.dev.**	**95% CRI**
	INTERCEPT	0.005	0.235	$(-0.447, 0.471)$
	STIM-TYPE-**none**	-0.725	0.307	$(-1.343, -0.125)$
	STIM-TYPE-**some**	3.314	0.553	$(2.310, 4.453)$

Table 2 Experiment 2: Posterior means, standard deviations and 95% CRIs for the estimated mixed-effects logistic regression model.

The above means, standard deviations and CRIs are on the logit scale. We switch now to the more readily understandable probability scale and plot in Figure 4 the medians of the posterior distributions of the preference for, i.e., probability of, a **yes** response for the three stimulus types, and the associated 95% CRIs.

The second plot in Figure 4 shows the posterior distribution of the difference in probability of **yes** between negative sentences with existentials (**somenot**) and n-word sentences (**none**). The median difference in probability is 0.172. The difference is significant: the 95% CRI is $(0.030, 0.311)$, i.e., the interval does not overlap 0; we are therefore confident that n-word sentences have a higher preference for **no** than negatives sentences with existentials. The median is marked in the plot with a thicker continuous line (red), and the 95% CRI is marked with dashed lines (dark red); the dotted line (black) marking the 0 point is outside the 95% CRI.

4.3 Discussion

The results of the experiment confirm that sentences with n-words pattern like negative sentences w.r.t. the licensing of polarity particles in agreeing responses. This result is compatible with the NI analysis of n-words. Moreover, under the assumption that stimuli containing a sentential negation operator license both **yes** and **no** in agreeing responses, for which we found evidence in Experiment 1, the NI analysis indeed *predicts* the pattern that we found in Experiment 2.

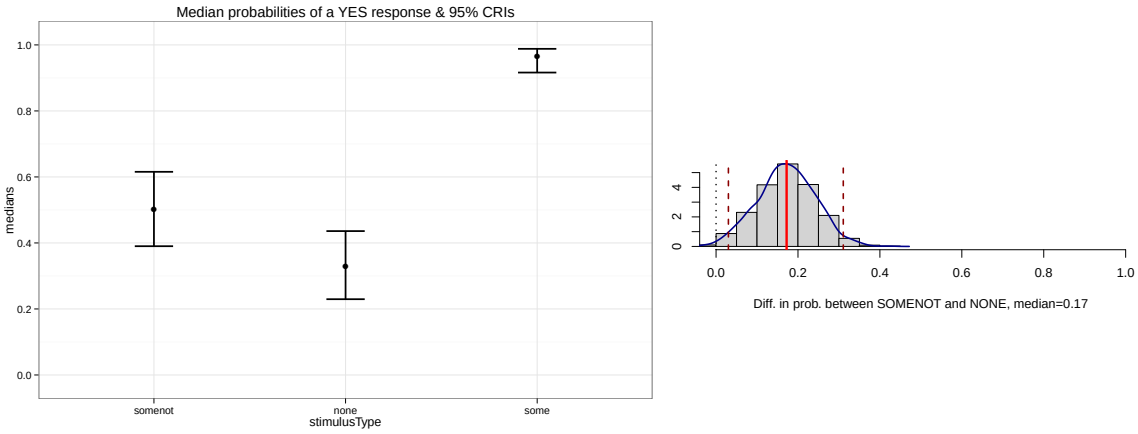

Figure 4 Experiment 2: Plot of posterior median probabilities of a **yes** response for the 3 stimulus types and corresponding 95% CRIs, and histogram of the posterior difference in probability of a **yes** response between **somenot** and **none**.

In other words, if the experiment had indicated that sentences with n-words patterned like positive sentences rather than negative sentence w.r.t. polarity particle licensing, we would have been forced to either (*i*) reject the NI analysis of n-words, or (*ii*) posit an account of polarity particles on which the felicity of a polarity particle response does not only depend on whether the stimulus sentence contains a sentential negation operator at the level of logical form, but also on the surface realization of this sentential negation operator — an assumption that is not made in any existing theory of polarity particles. Our findings do not force us to take any of these steps.

Let us briefly consider what would be needed to account for the observed pattern if instead of the NI analysis, we adopt an analysis of n-words as ordinary generalized quantifiers. On such an analysis, n-words like *nobody* and *never* are treated on a par with *somebody* and *sometimes*, and are not inherently linked with sentential negation. Thus, sentences with n-words are not directly predicted to behave like sentences with sentential negation.

Of course, it may still be possible to account for the observed pattern given a suitable account of polarity particles. For instance, one idea that immediately comes to mind is that the felicity of polarity particle responses may depend on *semantic* features of the stimulus sentence, rather than *syntactic* features. More specifically, one may hypothesize that the felicity of **no** in an agreeing response is determined by the presence of a *downward*

entailing operator in the stimulus sentence, rather than the presence of a sentential negation operator. However, recall that in Experiment 1 we considered stimuli with the downward entailing determiner *at most n*, and we did not find evidence that **no** is licensed in agreeing responses to such stimuli. For instance:

(18) A: At most six volunteers signed up for free housing.
B: Yes / *No, at most six of them did.

A weaker hypothesis, which *is* compatible with the results of Experiment 1, would be that **no** is licensed in agreeing responses to stimuli that contain an *anti-additive* operator.[10] In conjunction with this hypothesis, the basic generalized quantifier analysis of n-words would indeed account for the results of Experiment 2, just as the NI analysis. However, the anti-additivity hypothesis seems problematic in view of the following contrast:

(19) A: Bill ate without a spoon.
B: Yes / *No, he ate without a spoon.

(20) A: Bill didn't eat with a spoon.
B: Yes / No, he didn't eat with a spoon.

Further experimental work is needed to verify this contrast. And even if the anti-additivity hypothesis fails, it may still be possible to formulate a purely semantic theory of polarity particles which, in conjunction with a basic generalized quantifier analysis of n-words, would account for the results of Experiment 2. However, in the absence of such a theory, the generalized quantifier analyis of n-words does not account for the pattern that we found.

The NI analysis, on the other hand, does account for the observed pattern given the assumption that both **yes** and **no** are licensed in agreeing responses to stimuli that contain a sentential negation operator — an assumption that is commonly made in current theories of polarity particles.[11]

10 An operator f is anti-additive iff for any suitable x and y, $f(x \vee y) \Leftrightarrow f(x) \wedge f(y)$. E.g.:

(i) a. Bill did not sing or dance ⇔ Bill did not sing and Bill did not dance
b. Nobody sang or danced ⇔ Nobody sang and nobody danced
c. Bill ate without a spoon or a fork ⇔ B. ate without a spoon and without a fork

For more on semantic features of negative elements, see, for instance, Zwarts (1998).

11 As mentioned in footnote 1, the theory of de Swart & Sag (2002) makes the same predictions as the NI approach as far as the data discussed in this paper are concerned. Indeed, Ginzburg

5 Experiment 3: VP ellipsis

Experiment 3 provides additional evidence that sentences with n-words behave like negative sentences. It complements Experiment 2 in two ways.

First, we use a diagnostic that does not involve polarity particle responses, but rather responses involving VP ellipsis. Second, we consider n-words that occur in direct object position, rather than in subject position. The distribution of n-words in negative concord languages (e.g., Spanish and Italian) suggests that direct object n-words may trigger different response patterns than subject n-words, and we would like to test that.

We consider agreeing VP ellipsis responses to assertions which have an n-word, a referential NP (proper name or definite description), or an existential (*some*) in direct object position. Based on the findings from Experiment 2, we expect a strong preference for negated auxiliaries in agreeing responses to sentences with n-words in direct object position, and a strong preference for affirmative auxiliaries in agreeing responses to sentences with referential direct objects — this is the main contrast we are interested in. Existential direct objects are included to control for / factor out the possibility that the preference exhibited by n-word cases should be primarily attributed to their quantificational nature in general instead of their particular negative character.

Method. Just as for Experiments 1 and 2, we used online questionnaires to test whether people prefer to use positive VP ellipsis (no sentential negation, only *do*-support) or negative VP ellipsis (sentential negation plus *do*-support) in agreeing responses to a previously made assertion. Three examples of experimental items are provided below:

(21) The published review overestimates the true effect of the interventions. [stimulus]
   a. I agree, it does. [response option 1]
   b. I agree, it doesn't. [response option 2]

(22) The first two candidates answered none of the questions convincingly. [stimulus]
   a. I agree, they did. [response option 1]
   b. I agree, they didn't. [response option 2]

& Sag (2000) explicitly note that their account of polarity particles combined with de Swart & Sag's account of negation and n-words predicts the pattern observed in Experiment 1.

(23) The lawyers ignored some of the most important pieces of evidence. [stimulus]

a. I agree, they did. [response option 1]

b. I agree, they didn't. [response option 2]

The dependent variable RESP encodes the form of the VP ellipsis in responses, i.e., it is a factor with 2 levels: just *do*-support, coded **yes** for uniformity with the previous two experiments, and *do*-support plus sentential negation, coded **no** for uniformity; 'success' level: **yes**.

We have one independent variable STIM-TYPE (a factor with 3 levels: **ref**, **none**, **some**; reference level: **ref**) encoding the three types of stimuli we considered: (*i*) sentences with referential direct objects (**ref**), exemplified in (21) above; (*ii*) sentences with n-word direct objects (**none**), exemplified in (22); and finally (*iii*) sentences with existential direct objects (**some**), exemplified in (23).

If the stimulus is positive (STIM-TYPE = **ref** or STIM-TYPE = **some**), we expect that agreement is generally signaled with positive VP ellipsis (coded as **yes**). If the stimulus is negative (STIM-TYPE = **none**), we expect that agreement can be signaled with both positive VP ellipsis (coded **yes**) and negative VP ellipsis (coded **no**), with a preference for negative VP ellipsis.

For each of the 3 conditions, 3 items were generated for a total of 9. For each participant, we randomly selected 1 item for each of the 3 combinations. Total number of observations: $N = 52 \times 3 = 156$.

5.1 Results

A barplot for responses by STIM-TYPE is provided in Figure 5.

The main observation is that sentences with n-words license both positive and negative VP ellipsis in agreeing responses with a very strong preference for negative responses, unlike sentences with referential or existential direct objects, which basically license only positive VP ellipsis.

5.2 Statistical analysis

We have only one fixed effect, namely STIM-TYPE, so we only need to consider different structures for the random effects. Random effects for items — either for the intercept only or for both the intercept and the STIM-TYPE slopes — account for (practically) no variability in the response, so we omit them.

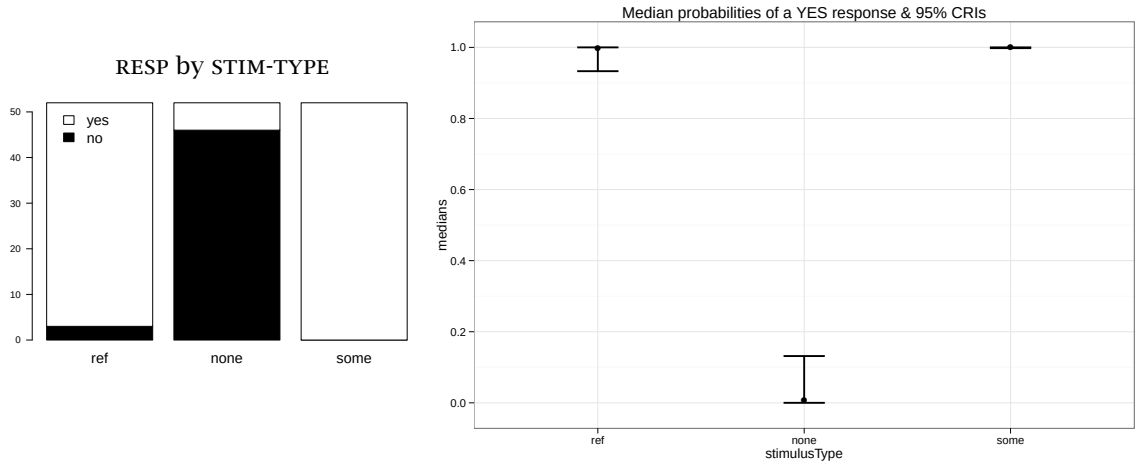

Figure 5 Experiment 3: Barplot of responses for the 3 stimulus types, and plot of posterior median probabilities of a **yes** response for the same 3 stimulus types and corresponding 95% CRIs.

Similarly, subject random effects for the STIM-TYPE slopes in addition to the intercept account for practically no variability, so we omit them.

The final model is a mixed-effects logistic regression with one fixed effect, namely STIM-TYPE, and subject random effects for the intercept. Once again, there are many cells with 0 or very low counts, so Bayesian estimation is a natural way to proceed. The vague priors for the intercept and non-reference levels of STIM-TYPE are all independent normals $N(0, 10^2)$, just as before. Priors for random effects: we assume a normal distribution $N(0, \sigma^2)$ for the intercept random effects; the prior for the standard deviation σ is uniform $Unif(0, 10)$. Table 3 provides the estimated means, standard deviations and 95% CRIs of the posterior distributions for the random and fixed effects.[12]

We observe that stimuli with n-words in direct object position have a much higher preference for negative VP ellipsis than stimuli with referentials in direct object position.

Moreover, existentials have an overwhelming preference for affirmative VP ellipsis, just as referentials do. In fact, existentials seems to have an even stronger preference for affirmative VP ellipsis than referentials.

12 Details of the MCMC estimation: 3 chains, 425,000 iterations per chain, 25,000 burn-in, 400 thinning.

The means, standard deviations and CRIs in Table 3 are on the logit scale. Just as before, we switch to the more readily understandable probability scale and plot the medians of the posterior distributions of the preference for, i.e., probability of, a **yes** response for the three stimulus types, together with the 95% CRIs. For reasons of space, this plot is displayed above, to the right of the barplot summarizing the results of Experiment 3.

The plot shows that the probability of a negative VP-ellipsis response to stimuli with referential or existential direct objects is practically null. In contrast, the probability of a negative VP-ellipsis response to stimuli with n-word direct objects is very high, but an affirmative VP-ellipsis response to stimuli with n-word direct objects is marginally possible.

5.3 Discussion

This experiment reinforces the findings of Experiment 2 by means of a different diagnostic (VP ellipsis as opposed to polarity particles) and indicates that n-words in direct object position exhibit the same kind of behavior as when they occur in subject position.

Let us again briefly consider what would be needed in order to account for the observed pattern if instead of the NI analysis, we adopted an analysis of n-words as ordinary generalized quantifiers. Clearly, we would rely in that case on a theory of VP ellipsis that determines the polarity of the remnant auxiliary based on semantic features of the elided VP. For instance, one could imagine a theory of VP ellipsis which says that the remnant auxiliary must be negative just in case the elided VP contains a downward entailing or anti-additive operator. However, such a theory seems problematic in view of the following observations:

RANDOM EFFECTS		mean	std.dev.	95% CRI
	σ	4.087	2.225	(0.313, 8.820)
FIXED EFFECTS		mean	std.dev.	95% CRI
	INTERCEPT	7.022	3.017	(2.634, 13.855)
	STIM-TYPE-**none**	−12.467	5.225	(−23.833, −4.793)
	STIM-TYPE-**some**	10.279	5.814	(1.528, 23.176)

Table 3 Experiment 3: Posterior means, standard deviations and 95% CRIs for the estimated mixed-effects logistic regression model.

(24) A: Bill ate at most two crackers.
B: I agree, he did / *didn't.

(25) A: Bill ate without a spoon.
B: I agree, he did / *didn't.

Again, further experimental work is needed to verify these contrasts. And even if the envisioned theory of VP ellipsis based on downward entailment or anti-additivity fails, it may still be possible to formulate a suitable theory of VP ellipsis which, in conjunction with the basic generalized quantifier analysis of n-words, would account for the results of Experiment 3. However, in the absence of such a theory, the generalized quantifier analyis of n-words does not account for the pattern that we found.

The NI analysis, on the other hand, does account for the observed pattern, in conjunction with any theory of VP ellipsis that directly links the polarity of the remnant auxiliary to the presence of sentential negation in the antecedent VP.

6 Conclusion

The goal of this paper was to provide two new ways of testing the hypothesis that n-words are indefinite expressions occurring in the scope of a sentential negation operator, which is the hallmark of the NI analysis of n-words.

The first two experiments were concerned with polarity particles. We found that in agreeing responses to positive sentences only **yes** is licensed, while in agreeing responses to negative sentences both **yes** and **no** are licensed. Sentences with n-words were shown to license both **yes** and **no**, thus patterning with negative sentences. This is predicted by the NI analysis, given standard assumptions about polarity particles. On the alternative GQ approach, the observed pattern is not explained under standard assumptions about polarity particles. One may of course attempt to develop a suitable alternative account of polarity particles. However, we pointed out several challenges that such an attempt would face.

The third experiment was concerned with agreeing responses involving VP ellipsis to sentences with and without n-words. We saw that sentences with n-words triggered responses with a negative auxiliary, in sharp contrast with sentences without n-words, which trigger responses with an affirmative auxiliary. Again, this is predicted on the NI approach given standard assumptions about VP ellipsis, while on the alternative GQ approach, it can only

be explained by reverting to non-standard assumptions about VP ellipsis, a move that seems to face significant challenges.

Thus, the experimental results reported here generally support the NI approach. They also raise a number of issues for future work. Perhaps most strikingly, in Experiment 1 we found a clear contrast between different types of subject NPs. For instance, in agreeing responses to sentences like *Peter didn't step forward* (with a referential subject NP) we found a strong preference for **no** over **yes**, while in agreeing responses to sentences like *Exactly five students didn't step forward* (with a non-monotonic quantificational subject NP) we found a strong preference for **yes** over **no**. This contrast was not relevant for the immediate purposes of the present paper, but it does of course stand in need of explanation, which is only partially provided by current theories of polarity particles.

A second striking finding was that, even though in response to sentences like *Mary visited none of her friends* there was a strong preference for *I agree, she didn't* over *I agree, she did*, the second type of response was not completely ruled out. It should be tested whether this is also the case for ordinary negative sentences like *Mary didn't visit any of her friends*. If so, this would be in line with the experimental results obtained here. If not, however, (and this is actually what we suspect) there would be a contrast between ordinary negative sentences and sentences involving n-words, which would stand in need of explanation, given the direct connection between n-words and sentential negation that is assumed on the NI approach.[13]

Another follow-up related to Experiment 3 would involve comparing n-word sentences and negative sentences with referential NPs in addition to the comparison pursued in Experiment 3, i.e., n-word sentences vs. negative sentences with existentials. The reason is that negative sentences with existentials do not behave exactly as the 'prototypical' negative sentences with referential NPs, as Experiment 1 showed.

13 As suggested to us by Kai von Fintel, in further exploring this issue it would be good to investigate the acceptability of non-elliptical responses as well. For instance, it seems that the non-elliptical response in (ib), though perhaps less natural than the one in (ia), is not entirely ruled out, just like its elliptical counterpart.

(i) Mary visited none of her friends.
   a. I agree, she didn't visit any of her friends.
   b. I agree, she did visit none of her friends.

Finally, in order to further distinguish the NI approach from the alternative GQ analysis sketched here, as well as possible extensions thereof, the experiments presented in this paper should be reproduced with downward entailing nominals and adverbs (e.g., *few of the kids*, *rarely*) instead of n-words.

A Experimental items

A.1 Experiment 1

(1) The man stepped forward.
Yes, he did. / No, he did.

(2) This substance will prevent the clay from twisting.
Yes, it will. / No, it will.

(3) The experiment provides an important source of evidence for string theory.
Yes, it does. / No, it does.

(4) The administration's budget review didn't make the congress happy.
Yes, it didn't. / No, it didn't.

(5) The government representatives didn't go to the Congo.
Yes, they didn't. / No, they didn't.

(6) The composer didn't use the chorus very often.
Yes, he didn't. / No, he didn't.

(7) Some of the people that Luce hired saw the world differently.
Yes, some of them did. / No, some of them did.

(8) Some of the answers trouble Archbishop Kolini.
Yes, some of them do. / No, some of them do.

(9) Some of the Mujahideen who had once fought the Russians now fought the Americans.
Yes, some of them did. / No, some of them did.

(10) Some of the most influential anthropologists don't understand the world's social dynamics at all.
Yes, some of them don't. / No, some of them don't.

(11) Some of the hostages were not hearing the news in Iraq.
Yes, some of them weren't. / No, some of them weren't.

(12) Some of the Greek vases did not come from this collection.
Yes, some of them didn't. / No, some of them didn't.

(13) At most seven of the company's units will expand this year.
Yes, at most seven of them will. / No, at most seven of them will.

(14) At most 500 boarding students will enroll early this year.
Yes, at most 500 of them will. / No, at most 500 of them will.

(15) At most four of the children went into the church at noon.
Yes, at most four of them did. / No, at most four of them did.

(16) At most five White House correspondents did not burnout within the first two years.
Yes, at most five of them didn't. / No, at most five of them didn't.

(17) At most three of these species have not been observed before.
Yes, at most three of them haven't. / No, at most three of them haven't.

(18) At most six volunteers did not sign up for free housing.
Yes, at most six of them didn't. / No, at most six of them didn't.

(19) Exactly two of the applicants were appropriately qualified for the job.
Yes, exactly two of them were. / No, exactly two of them were.

(20) Exactly 12 of the District's executive branch agencies reported on time.
Yes, exactly 12 of them did. / No, exactly 12 of them did.

(21) Exactly three of the athletes who won this year also won last year.
Yes, exactly three of them did. / No, exactly three of them did.

(22) Exactly five of the companies that were evaluated did not comply with official regulations.
Yes, exactly five of them didn't. / No, exactly five of them didn't.

(23) Exactly two of the chimps did not make any mistakes in carrying out the final task.
Yes, exactly two of them didn't. / No, exactly two of them didn't.

(24) Exactly 20 of the women who tried the product did not complain about nausea or other side effects.
Yes, exactly 20 of them didn't. / No, exactly 20 of them didn't.

(25) The pianist was impressed by Schnabel's performance.
He was, yes. / He was, no.

(26) This element is just as plentiful as uranium.
It is, yes. / It is, no.

(27) This form of Christianity is less strict than the Protestantism of the older stock.
It is, yes. / It is, no.

(28) The caregiver didn't succeed in creating a relaxed environment.
He didn't, yes. / He didn't, no.

(29) The pagodas we passed were not as large as the houses.
They weren't, yes. / They weren't, no.

(30) This nation didn't manage to hold onto its madrigal tradition.
It didn't, yes. / It didn't, no.

(31) Some of the reforms were reversed.
Some of them were, yes. / Some of them were, no.

(32) Some of the hostages remained in the school building.
Some of them did, yes. / Some of them did, no.

(33) Some of the stories reported by the liberal media will likely cause broad public discussion.
Some of them will, yes. / Some of them will, no.

(34) Some of the published communications did not get to the heart of the problem.
Some of them didn't, yes. / Some of them didn't, no.

(35) Some of the major drawbacks do not involve online technology.
Some of them don't, yes. / Some of them don't, no.

(36) Some of the juveniles did not understand the questionnaire.
Some of them didn't, yes. / Some of them didn't, no.

(37) At most three of the visitors will stay for the entire week.
At most three of them will, yes. / At most three of them will, no.

(38) At most five of the participants will receive a special award at the festival next month.
At most five of them will, yes. / At most five of them will, no.

(39) At most one of the men brought his car to a certified mechanic.
At most one of them did, yes. / At most one of them did, no.

(40) At most five of the miners did not contact their families after the accident.
At most five of them didn't, yes. / At most five of them didn't, no.

(41) At most three of the climbers did not hurt their hands on the way up.
At most three of them didn't, yes. / At most three of them didn't, no.

(42) At most two of the roads over the mountain ridge won't close down over the winter.
At most two of them won't, yes. / At most two of them won't, no.

(43) Exactly one of these sculptures is still in its original state.
Exactly one of them is, yes. / Exactly one of them is, no.

(44) Exactly four of these ships will leave for Singapore tomorrow.
Exactly four of them will, yes. / Exactly four of them will, no.

(45) Exactly two of the workers will be considered for promotion after the project.
Exactly two of them will, yes. / Exactly two of them will, no.

(46) Exactly five of the children in this class did not finish their work in time.
Exactly five of them didn't, yes. / Exactly five of them didn't, no.

(47) Exactly three of these recipes are neither kosher nor halal.
Exactly three of them aren't, yes. / Exactly three of them aren't, no.

(48) Exactly two shows that played at the Golden Gate theater this month did not sell out.
Exactly two of them didn't, yes. / Exactly two of them didn't, no.

A.2 Experiment 2

(1) None of the established online encyclopedias had an entry on Joe Mandarin.
Yes, none of them did. / No, none of them did.

(2) None of the local bookstores are hiring full-time.
Yes, none of them are. / No, none of them are.

(3) None of the treatments significantly reduced dark circles.
Yes, none of them did. / No, none of them did.

(4) Some of the medical ships are still standing offshore in the Persian Gulf.
Yes, some of them are. / No, some of them are.

(5) Some of the world's biggest libraries are located in China.
Yes, some of them are. / No, some of them are.

(6) Some of the causes of instability and conflict are well-understood.
Yes, some of them are. / No, some of them are.

(7) Some of the above gentlemen did not pay a fine.
Yes, some of them didn't. / No, some of them didn't.

(8) Some of these methods have not been thoroughly tested yet.
Yes, some of them haven't. / No, some of them haven't.

(9) Some of the opinions provided by focus group participants were not mentioned in the project report.
Yes, some of them weren't. / No, some of them weren't.

(10) The federal government never considered alternative solutions to subsidizing the banks.
Yes, it never did. / No, it never did.

(11) The Neanderthals never crossed the Mediterranean.
Yes, they never did. / No, they never did.

(12) Richard Russo never received the National Book Award.
Yes, he never did. / No, he never did.

(13) Midwestern grain farmers in the early 19th century sometimes sold their crops while they were still growing.
Yes, they sometimes did. / No, they sometimes did.

(14) Women sometimes seek emotional satisfaction in one relationship and economic support in another.
Yes, they sometimes do. / No, they sometimes do.

(15) The rise of romantic love as a marital ideal is sometimes associated with greater gender equality.
Yes, it sometimes is. / No, it sometimes is.

(16) Infants sometimes do not learn to speak before the age of four.
Yes, they sometimes don't. / No, they sometimes don't.

(17) Outside vendors sometimes did not make their promised deadlines.
Yes, they sometimes didn't. / No, they sometimes didn't.

(18) Both services sometimes do not have delivery times available until 48 hours after ordering.
Yes, they sometimes don't. / No, they sometimes don't.

A.3 Experiment 3

(1) The broker mentioned none of the obvious drawbacks of the house's location.
I agree, he did. / I agree, he didn't.

(2) The leaders of the French expedition took none of the recommended safety precautions.
I agree, they did. / I agree, they didn't.

(3) The first two candidates answered none of the questions convincingly.
I agree, they did. / I agree, they didn't.

(4) The lawyers ignored some of the most important pieces of evidence.
I agree, they did. / I agree, they didn't.

(5) Almaz Ayupov provided some of the crucial references for this article.
I agree, she did. / I agree, she didn't.

(6) The director removed some of the most interesting scenes from the screenplay.
I agree, he did. / I agree, he didn't.

(7) People who truly want to delve into baseball should visit the Astros Clubhouse.
I agree, they should. / I agree, they shouldn't.

(8) The current debate overlooks the most natural implication of the Court's consensus-based argumentation.
I agree, it does. / I agree, it doesn't.

(9) The published review overestimates the true effect of the interventions.
I agree, it does. / I agree, it doesn't.

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