Preface: Discourse negation—costs and effects

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The current special issue focuses on negation and context. It studies both the processing and production of negation in various languages such as German, Hebrew, Spanish, English, and French. Exploring negation in various contexts and cultures allows testing several prevailing assumptions about its effects and the contexts in which it might prevail. Although none of the papers involves a comparative approach, the overall picture that emerges suggests that negation is not processed differently in different languages and cultures and has no different contextual effects in these languages. This special issue, however, sheds light on individual differences that might obtain within the same culture (see Schindele, Lüdtke, & Kaup), on the contexts in which it is used (Beltrán et al.), on its multifunctionality (Fraenkel & Schul), and its effects on the accessibility of the concepts within its scope (Shuval & Hemforth; Levine & Hagaman; Giora, Zimmerman, & Fein).

1. Plausible contexts for negation

One of the widely acknowledged asymmetries between negations and affirmations concerns their interpretation: the assumption is that negation is harder to comprehend than affirmation and requires a specific prior context for its interpretation (for a review, see Giora 2006). An instance of such a context has been studied by Glenberg, Robertson, Jansen, and Johnson-Glenberg (1999). In their study, relevant prior contexts, featuring an assumption to be denied later on, rendered negation as easy to understand as affirmation. Another such instance was examined by Wason (1965). In his study, a context, featuring an exceptional entity to be negatively referred to, was shown to constitute a plausible context for denials.

There is, however, a striking paucity of research into the plausible contexts of denials communicated affirmatively. Affirmations can deny or

Figure 1

reject an assumption as plausibly as negations (Giora 2006; Searle 1975). For instance, in Figure 1, it is the affirmative (*Wet paint*) that communicates a rejection of a commonly held view (and practice) that women's bodies (like babies') have no boundaries and can be touched by both women and men (LaFrance 1985; Romaine 1999)—an assumption which Piper (1970) protestingly rejects without recourse to negation (see also Heruti 2008).

Indeed, comparing the plausible contexts of negative and affirmative denials might problematize the received view that negations and affirmations are produced and processed differently.

A pioneering study of the kind of context that prompts negations is offered by Beltrán, Orenes, and Santamaría. Contrary to the received view, Beltrán et al. show that it is not the case that just any prior context featuring a false assumption invites its rejection via negation. Rather, negation is opted for when a number of alternatives are viable. However, when only a single alternative is available then that affirmative is preferred. Use of negations then depends on the polarity of the assumption to be rejected: bi-polar concepts (size) will not invite negation; muti-polar concepts (color)—will.

Schindele, Lüdtke, and Kaup's contribution is also the first study of its kind, looking into the effect of contextual information on the processing of negations and affirmations among normal individuals and individuals with high functioning autism or Asperger's syndrome (HA/AS). Results demonstrate the costs and benefits of sensitivity to contextual information among the different populations. Among normal individuals, the plausibility of a pragmatic inference played a significant role when it was

negated but not when it was related to affirmatively. Whereas high plausibility speeded up reading times of negated sentences to the extent that they were read as fast as their affirmative counterparts, reading times of affirmatives remained constant even when inference-plausibility was low. In contrast, individuals with HA/AS, who are known to be less receptive to contextual effects, were unaffected by the degree of plausibility of the inference, regardless of whether it was rejected or not. Although, in all, it took individuals with HA/AS longer to read all the targets compared to normal adults, negation did not take longer to read when rejecting an implausible versus a plausible assumption. Note that normal individuals benefited from inference plausibility only as far as taxing targets (negations) were concerned. However, much like individuals with HA/AS, they were insensitive to inference plausibility when it concerned less taxing (affirmative) targets.

2. The accessibility of negated concepts

Another widely acknowledged asymmetry between negations and affirmations concerns the assumption that negation always reduces the levels of activation of the concept within it scope so that eventually it is eliminated from the mental representation. Nonnegated concepts, however, are retained longer in memory (Hasson & Glucksberg 2006; MacDonald & Just 1989, among others) and can therefore be elaborated on and even become the topic of the next discourse segment. Several studies presented here address the accessibility of negated constituents (for extensive reviews and data, see Giora 2006, 2007; Giora et al. 2007).

Shuval and Hemforth and Levine and Hagaman tested accessibility of negated constituents by looking at the likelihood of a negated constituent to be considered during anaphor resolution. Using both the visual world paradigm, which monitors eye movement, and reading times measures, Shuval and Hemforth show that negated concepts are indeed accessible enough to be considered as antecedents of a pronoun—a high accessibility marker (Ariel 1990); albeit less accessible than nonnegated constituents, negated constituents are still significantly more accessible than both unrelated concepts and concepts rejected via repairs (*muffins, no, waffles*).

Examining anaphor resolution, Levine and Hagaman also testify to the accessibility of negated concepts. They show that the ease with which an affirmative referent (*mango* in *Justin bought a mango but not an apple. He ate the fruit.*) is retrieved by an anaphoric expression ("fruit") is sensitive to the degree of prototypicality of the negated nonreferent competitor

(*apple*): The higher the prototypicality of the nonreferent the harder it is to retrieve the designated antecedent. This sensitivity to the prototypicality of the negated nonreferent, which slows down the referent's retrieval through interference, is allowed by the accessibility of the negated nonreferent. Results from a cued-recall test further support the view the negated concepts need not be suppressed, but may instead be retained in memory.

Giora, Zimmerman, and Fein also adduce evidence supporting the view that negated information need not be suppressed but may instead be retained for pragmatic purposes (Giora 2006, 2007; Giora et al., 2007). In three experiments they show that negated comparisons are comparisons: *Bush is not Hitler* is represented in much the same way as *Bush is Hitler*. For instance, both are rated as equally appropriate. In addition, both are similarly sensitive to the degree of prototypicality of the source's features brought to bear on the comparison (e.g., "was actively running extermination camps" vs. "was legally elected"). Thus, more prototypical features render the negated comparison more appropriate than less prototypical ones; more prototypical features facilitate negated comparisons relative to less prototypical ones. Negation then does not reduce the accessibility of the negated concept if that concept is pragmatically relevant to the discourse in question.

Fraenkel and Schul's contribution fleshes out the extent to which negated adjectives convey a mitigated interpretation of their opposite alternative. The strength of the mitigation is shown to be a function of both the markedness and the dichotomous nature of the negated concepts. Because negated dichotomies ("alive"/"dead") are highly similar to their antonym they cannot weaken it significantly, regardless of markedness. "Not alive", for instance, is hardly mitigated, since it is equivalent to its antonym ("dead"). Scalar adjective are more asymmetrical in this respect. "Not good", for instance, is not strongly mitigated either because it is similar to its antonym ("bad"). That is, because "not good" and "bad" are more similar than "not bad" and "good", "not bad" is more strongly mitigated than "not good" (see also Colston 1999). Fraenkel and Schul provide support for the mitigation hypothesis on the basis of findings in both specific contexts and outside such contexts.

Along the lines suggested by Beltrán et al., their findings imply that concepts that have an available opposite—unmarked scalar adjectives, but much more so, dichotomous adjectives—will invite an affirmative alternative rather than a negative statement when rejected. (On the role of affirmative opposites in facilitating interpretation, see Mayo, Schul, & Burnstein 2004).

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