ELSEVIER

Brief article

Contextual override of pragmatic anomalies: Evidence from eye movements

Ruth Filik *

Department of Psychology, University of Glasgow, 58 Hillhead Street, Glasgow G12 8QB, Scotland, UK

Abstract

Readers typically experience processing difficulty when they encounter a word that is anomalous within the local context, such as 'The mouse picked up the *dynamite*...'. The research reported here demonstrates that by placing a sentence in a fictional scenario that is already well known to the reader (e.g., a *Tom and Jerry* cartoon, as a context for the example sentence above), the difficulty usually associated with these pragmatic anomalies can be immediately eliminated, as reflected in participants' eye movement behaviour. This finding suggests that readers can rapidly integrate information from their common ground, specifically, their cultural knowledge, whilst interpreting incoming text, and provides further evidence that incoming words are immediately integrated within the global discourse.
© 2007 Elsevier B.V. All rights reserved.

Keywords: Pragmatic anomalies; Discourse context; Common ground; Eye movements

1. Introduction

An expression such as *The mouse picked up the dynamite* clearly causes disruption at the word *dynamite*, as our knowledge of the world tells us that mice do not generally do this. However, if we encounter such a sentence in the context of a Tom and Jerry cartoon, does it still cause a problem? This is the question addressed in the current paper.

---

* Tel.: +44 (0)141 330 6173; fax: +44 (0)141 330 4606.
 E-mail address: r.filik@psy.gla.ac.uk

Most research on anomaly processing has studied how the language processor reacts to different kinds of violations; comparing processing of syntactic, semantic and pragmatic anomalies (e.g., Braze, Shankweiler, Ni, & Palumbo, 2002; Hagoort, Hald, Bastiaansen, & Petersson, 2004; Ni, Fodor, Crain, & Shankweiler, 1998; Rayner, Warren, Juhasz, & Liversedge, 2004). In the current paper, we are exclusively interested in local pragmatic anomalies, that is, the processing of information that is at odds with the readers' knowledge of the world. Specifically, we examine whether or not discourse context can override the difficulty normally associated with these anomalies.

A number of recent studies have demonstrated early context effects on language processing (e.g., Altmann & Kamide, 1999; Camblin, Gordon, & Swaab, 2007; Hess, Foss, & Carroll, 1995; Kamide, Altmann, & Haywood, 2003; Pickering & Traxler, 1998; Tanenhaus, Spivey Knowlton, Eberhard, & Sedivy, 1995; Van Berkum, Zwitserlood, Hagoort, & Brown, 2003). In Pickering and Traxler's (1998) study (Experiment 3) participants read syntactically ambiguous sentences such as *While the janitor was polishing(,) the professor that the principal hated reviewed the spring term teaching schedule*. Context either caused *the professor* to be initially interpreted literally (as a person) or non-literally (as a statue of the professor). Readers had greater difficulty processing *the professor* in the literal condition (since a professor cannot be polished) and greater difficulty processing the verb *reviewed* in the non-literal condition (as a statue cannot review something), suggesting that readers had accessed and used contextual information rapidly when parsing sentences in discourse.

Pickering and Traxler examined the influence of pragmatic information on syntactic parsing decisions during the resolution of local ambiguities. In contrast, the current study investigates whether pragmatic information can overcome the processing difficulty normally associated with local anomalies present in syntactically unambiguous sentences. Furthermore, it is likely that the processes involved in making use of cultural knowledge when assigning an interpretation to a sentence are more subtle and complex than inferring whether a noun is to be interpreted literally or non-literally. Relevant to the current question is a recent ERP study carried out by Nieuwland and Van Berkum (2006; see also Van Berkum et al., 2003 for the modulation of anomaly effects by discourse context). Participants listened to (Dutch) 'cartoon-like' stories describing interactions between human characters and inanimate objects, for example, a therapist talking to a yacht. The rationale was that by building up a cartoon-like context in which a yacht has human characteristics, listeners should no longer experience the word *yacht* as being anomalous when it is described as being engaged in human-like behaviour (e.g., "The therapist consoled the *yacht*"). Pragmatic anomalies typically elicit a negative-going deflection in the ERP with an onset around 200 ms and a peak at about 400 ms (N400; see Kutas & Van Petten, 1994, for a review). In Nieuwland and Van Berkum's Experiment 1, participants encountered this kind of animacy violation in the first, third, and fifth sentence of a story. The first presentation of the inanimate noun (e.g., *yacht*) elicited a larger N400 than animate control words (e.g., The therapist consoled the *sailor*), reflecting the fact that in the absence of context, listeners found it anomalous for inanimate objects to have conversations. The N400 associated with the animacy violation was still present in the third