Tracking multiple common grounds: Mismatches in activation

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The interpretation and use of referring expressions depends on the speech context, and this is true not only for indexical expressions such as *I* and *you*, but also for 3d person pronouns. For instance, in (1) the pronoun *him* is acceptable because its referent *Ben* has been introduced and is highly activated in the Common Ground (CG) between the speakers Grace and the 1st person narrator (see e.g. Gundel et al., 1993). However, in (2) Ben is introduced in the narrator's thought context, and therefore in the CG between the narrator and the reader, but not in the CG between the narrator and Grace. Unless Grace is skilled at mind reading, she has not reason to assume that Ben is highly activated for the narrator, so it is strange for her to use a pronoun to refer to Ben.

Previous research has shown that when potential referents in the CG and those in the private context of the speaker are not the same, speakers sometimes choose a referring expression egocentrically, i.e. based on their private information rather than the referent's status in the CG (see e.g. Heller and Brown-Schmidt, 2023). Our research question in this paper is what happens when speakers (or writers) have to manage multiple conflicting CGs. In particular, if there is a mismatch in the activation of a referent between the CGs, are readers sensitive to the activation in the characters' CG, the narrator-reader CG, or is there an interference between the conflicting activation patterns from different CGs?

We devised an experiment in which we presented texts like (3) to participants and asked them to choose a referring expression that fits better into the context (a name or a pronoun) in the **target** sentence. The texts presented fragments of conversations between a 1st person narrator and another character (Bill, the interlocutor). The **opening** sentence introduced the interlocutor character. The following sentence introduced the **antecedent** (Amy) for the referring expression in the target sentence in the direct speech of the interlocutor. The target referent (Amy) and the interlocutor (Bill) always had distinct genders.

The purpose of the following sequence was to create distance between the antecedent and the target referring expression, so by the time the target sentence was interpreted, the activation of Amy decreased and the personal pronoun might no longer be the optimal choice to refer to her. In the **intervening speech** condition, that sequence constituted the direct speech of the narrator, so the activation of Amy decreased both in the narrator-reader CG and in the CG of the narrator and Bill. In the **intervening thought** condition, the same sequence (with tenses adjusted accordingly) was presented as a thought of the narrator. Bill did not hear these sentences, therefore, while Amy was being deactivated in the narrator-reader CG, she was not being deactivated (as much) in the characters' CG. For Bill, Amy was still the subject of the immediately preceding sentence when he interpreted the speech in the target sentence.

The following sentence did not contain direct speech and therefore only existed in the narrator-reader CG. In the **+reactivation** condition, that sentence reactivated Amy in the subject position; in the **–reactivation** condition, it did not, instead *I* was the subject. The combination of intervening speech with +reactivation created the opposite kind of mismatch: now Amy was relatively deactivated in the characters' CG, but highly activated in the narrator-reader CG. Our expectations for the preferred referring expressions are summarised in table 1.

The results show an overall preference for pronoun responses, which is not surprising as the pronoun was never ambiguous based on gender features. The effect of intervening context (speech vs. thought) was subtle but significant, cf. figure 1. As expected, there were more pronoun responses after intervening thought, which suggests that the target referent was seen as less strongly deactivated for the interlocutor character. This suggests that readers were able to track the distinct CGs of the characters and the narrator and the reader. At the same time, the effect of reactivation was more pronounced and highly significant, cf. figure 2, with the expected higher percentage of pronoun responses in the +reactivation condition. But since reactivation always took place in the "wrong" CG (in the narrator-reader CG, whereas the referring expression was part of the characters' interaction), this suggests that often enough participants chose the referring expression egocentrically from the perspective of the narrator-reader CG. This points to an interference of multiple CGs in the way they affect the choice of a referring expression.

(1) Grace walked into the kitchen with a basket full of apples. I caught a whiff of the scent that reminded me of my last summer back home.
"Ben will probably make a crumble," I said.
"Have you seen him yet today?" Grace asked.

(2) Grace walked into the kitchen with a basket full of apples. I caught a whiff of the scent that reminded me of my last summer back home. Ben would probably make a crumble.
"Have you seen #him yet today?" Grace asked.

(3)

opening	Bill pushed the plate of scones towards me.	
antecedent	"Amy wants to sell the boat," he said.	
intervening	**speech**	**thought**
	"Finally," I said, picking up the dropped napkin. "The old rust bucket nearly sank twice this year, and the repairs cost half a fortune. I've promised never to set foot in it again."	Finally, I thought, picking up the dropped napkin. The old rust bucket had nearly sunk twice this year, and the repairs had cost half a fortune. I had promised never to set foot in it again.
reactivation	**–**	**+**
	I poured milk into the cups and sat next to Bill.	Amy was cross and hadn't spoken to me since.
target	"[She/Amy] is asking a fair price, no doubt," I said and rolled a warm scone between my cold hands.	

reactivation	intervening	separate CGs	narr/reader CG dominance	CG interference
–	speech	less pronouns	less pronouns	less pronouns
–	thought	more pronouns	less pronouns	?
+	speech	less pronouns	more pronouns	?
+	thought	more pronouns	more pronouns	more pronouns

Table 1: Predictions

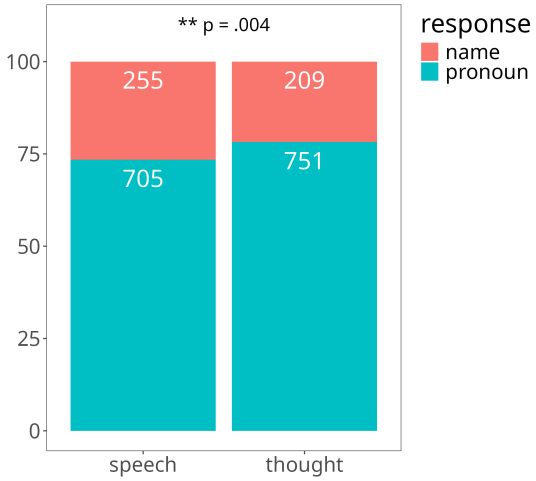

Figure 1: Percentage of pronoun responses in the intervening speech vs. thought condition

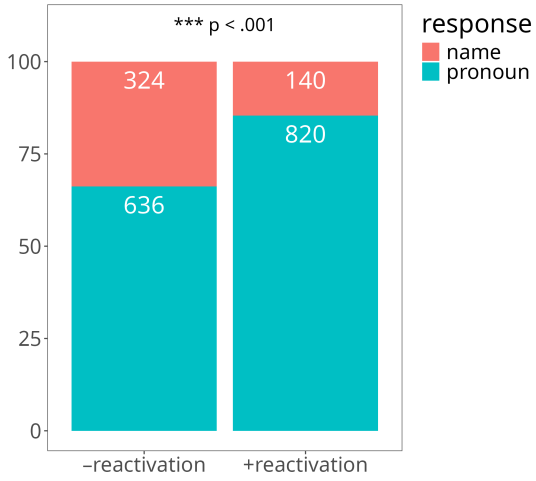

Figure 2: Percentage of pronoun responses in the –reactivation vs. +reactivation condition

References: Gundel, Hedberg & Zacharski 1993. Cognitive status and the form of referring expressions in discourse. *Language* 69: 274–307. Heller & Brown-Schmidt 2023. The multiple perspectives theory of mental states in communication. *Cognitive Science* 47: e13322.