Socially Facilitated Alignment and Novelty in Separate Channels of Communication

Monica A. Riordan, Rick Dale, Roger J. Kreuz & Andrew Olney
Department of Psychology, The University of Memphis

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Background

Several researchers (e.g., Pickering & Garrod, 2004) propose that priming is a central mechanism underlying alignment. When two people communicate, their levels of linguistic representation align by co-activating similar words, sentence structures, and so on.

We contrast this "socially facilitated priming" perspective with a "socially facilitated novelty" perspective, in which there is a disadvantage to high alignment because it stunts the flow of conversation by reducing novel contributions.

Participants

161 participants were recruited through Amazon's Mechanical Turk, which operates as a micro-task market in which researchers post tasks that are completed for money. Each received 75 cents for participating, which required approximately 12 minutes.

Figure 1: The basic Flash interface. During interaction trials, the example prime sentence shown is prefaced with either a database access (examples condition: n = 97) or that another person typed it (talk condition; bolded: n = 62). Participants supplied a statement of their own in response. Following this, both conditions performed a recall task, as shown.

* connected

Accessing example from database / **Waiting for their turn first**

I never ate buffalo meat.

Your turn! Type here, then click the arrow...

Recall the following statement:

I never ate ...

Type in this box

Figure 2

* = p < .05.

Future directions: automation with LSA

Using the same design, we have formulated prompts that are embedded in an LSA space (vector representations of meaning). This allows automated comparison of primes and responses at the semantic level. Participants collected so far (N = 31) have produced some consistent results (see below).

Method

The experiment consisted of a computer game, programmed in Adobe Flash (see Figure 1). Participants supplied their own statement after each conversation turn.
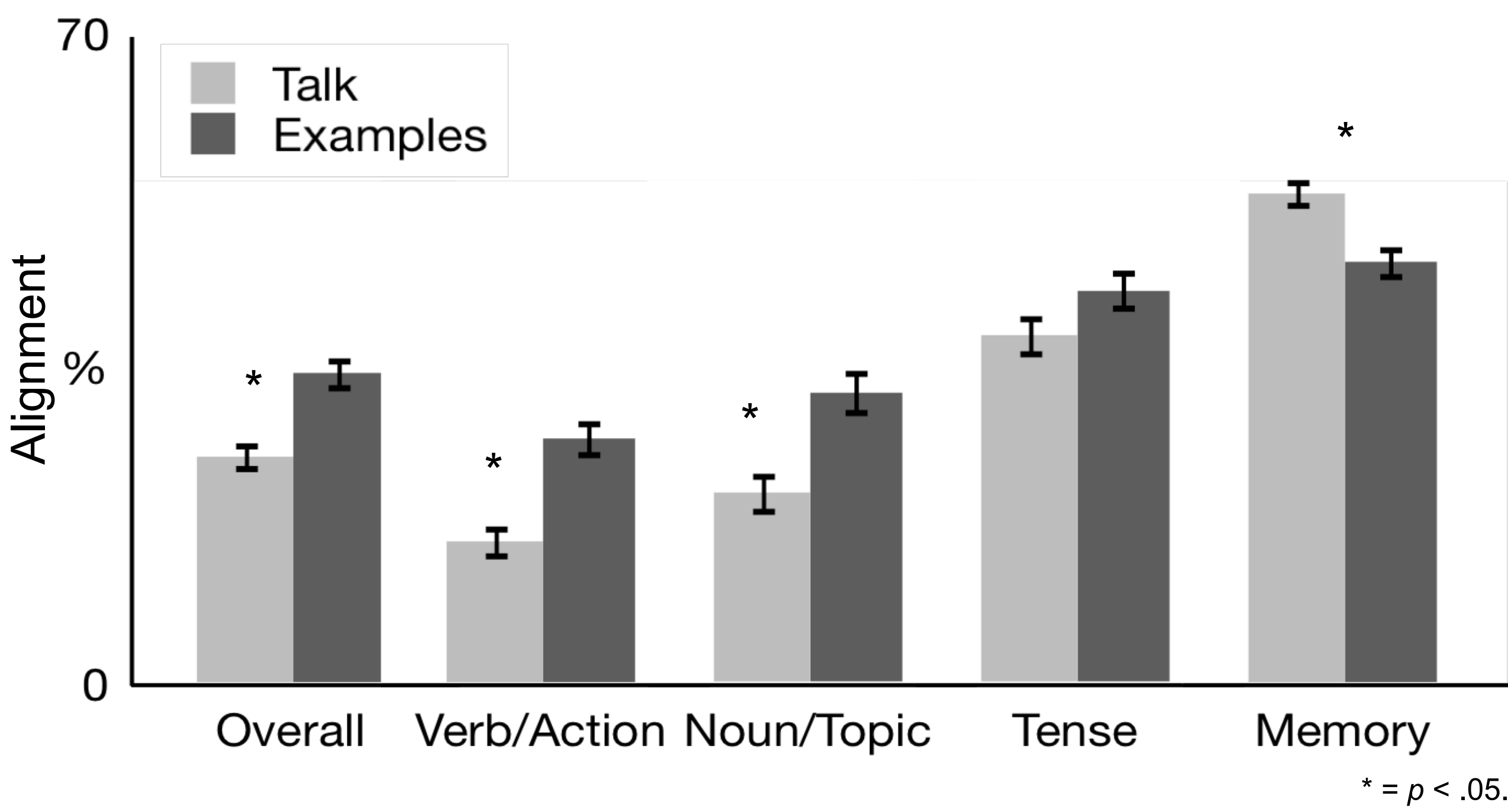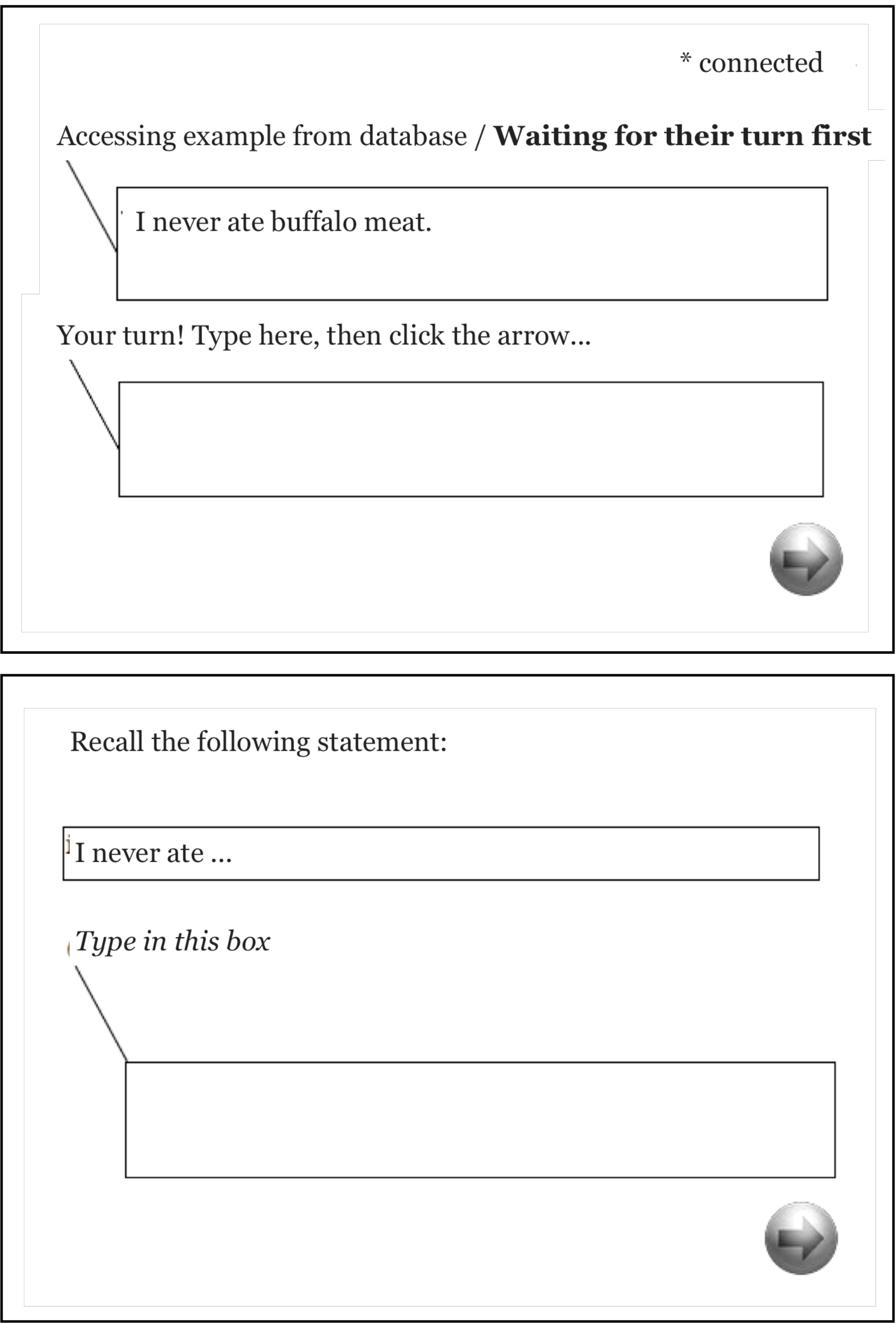
All participants were presented with statements in an "I never..." format that were pre-constructed. These statements did not differ between conditions (see Table 1). The pseudo-confederate/ database always presented the first statement. After 12 interaction turns, participants were asked to recall the endings of six of the given statements.

For the talk (pseudo-confederate) condition, an open-ended comment box asked how participants felt about the interaction.

Coding

Each response given by a participant was binary coded according to whether certain alignment dimensions matched or did not match the given prompt, including verb, tense, and topic. Two coders achieved high inter-rater reliability (κ = .82). We calculated an alignment score across the three dimensions of possible alignment (verb, tense, topic) ranging from 0 (none) to 3 (all). The responses to the six recall questions were coded as either correct or incorrect and a total score calculated for each participant.

Results

The examples condition showed more alignment than the talk condition. It appears this difference is generated by alignment of verb and topic (see Fig. 3).

Emoticons were extremely rare in the participant responses (total of 13 generated despite 696 presented). All emoticons except 2 occurred with primes that contained emoticons, suggesting emoticon alignment. Emoticons were mostly used in the talk condition (11 vs. 3, $X(1)$ = 11.5, p < .001).

Participants who believed they were chatting with another person were significantly more likely to remember the topics than those who believed they were seeing examples from a database (see Figure 2).

Discussion

Our data suggest that:

- Verbal alignment is significantly lower in natural communication than in bare priming circumstances.
- Nonverbal alignment is significantly higher in natural communication than in bare priming circumstances.
- Shared facts are more effectively encoded for recall.

Facilitated priming or novelty may depend on the communicative channel being examined. Novelty is favored in the verbal channel; priming is favored in the nonverbal channel. These results further suggest that it may be important to consider distinct functions of alignment at different communicative levels or channels.

Pure alignment is lower in the talk conditions because it does not necessarily facilitate socializing; conversations must be driven forward with ties to prior topics to maintain flow.

In addition, this study shows that computer-mediated communication may provide an efficient method for studying alignment without the use of human confederates.

Table 1: Example Prompt Stimulus Lists

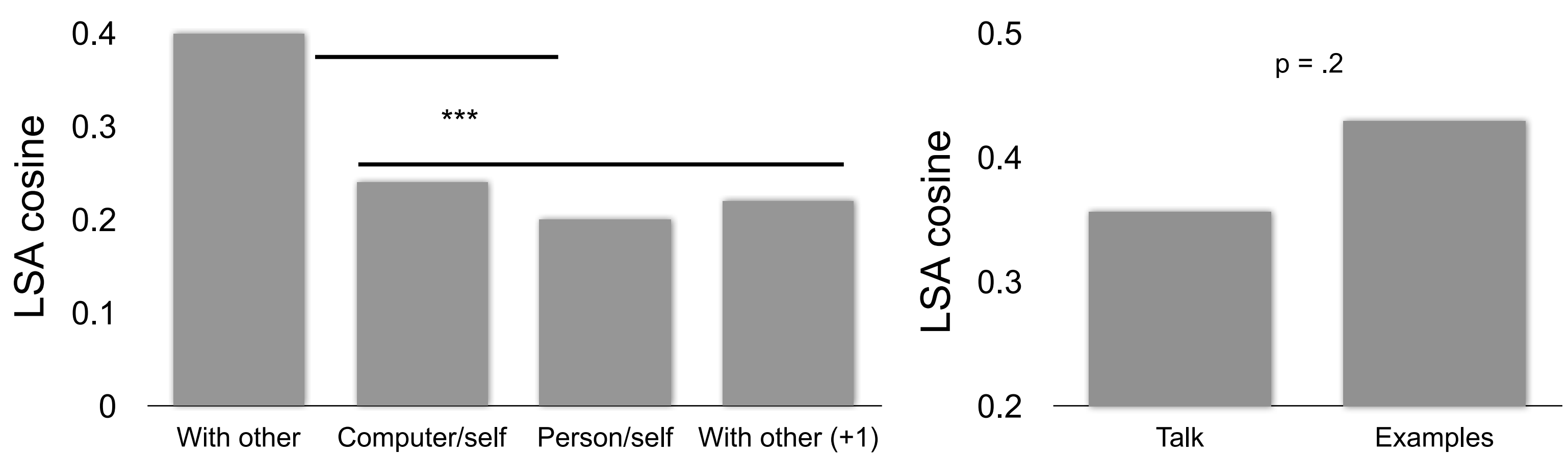| Set Type	Example
Past Tense / Frowns	I never ate buffalo meat :-(
Past Tense / Smiles	I never watched a documentary :-)
Present Tense	I never get Starbucks coffee
Present Perfect Tense	I have never climbed a mountain

Note: Other lists included past perfect tense, present perfect tense with mixed emoticons, past tense with mixed emoticons, and two additional lists with mixed properties.