Alignment and Priming of Spatial Perspective

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Abstract

Research on interactive alignment has provided evidence for lexical and syntactic priming but little is known about alignment at the conceptual level. In this study we tested for effects of priming (and alignment) of spatial perspective in a route description task within a confederate design which consisted of an early and a later experimental block. Indeed, participants' choice of spatial perspective was affected by the preceding perspective choice in confederates' descriptions on both the early and the later experimental blocks but there was no interaction between early and later priming. Furthermore, individual differences in spatial ability as measured by a mental rotation task did not play a significant role in degree of priming.

1 Introduction

The interactive alignment framework (Pickering & Garrod, 2004) posits that much of language production in a dialogic situation can be explained via automatic priming mechanisms. Whereas previous confederate paradigm studies have shown lexical priming and syntactic priming effects across interlocutors, conceptual alignment has not been addressed in this way. Here a first confederate paradigm study examined alignment of spatial perspective in a task where participants took turns in describing routes on schematic maps.

A route and an environment can be described from an external or allocentric view in a survey perspective, and from an embedded, or egocentric view in a route perspective. The results revealed that participants' responses on an early experimental block were indeed affected by confederate priming. The alignment effect, however, did not emerge on the later experimental block. Thus, spatial perspective alignment appears to occur when a speaker encounters consistent perspective choices by the interlocutor and is weakened if the interlocutor lacks a stable preference or switches perspective.

2 Experimental Method

In a second study, we examined to what extent our findings on alignment of perspective in a confederate paradigm task can be replicated in a perspective priming task which would be indicative of common mechanisms at play. Participants took turns with confederates in describing routes on a series of maps in an early and in a later block of four maps each. Confederates started first and their descriptions followed a script that manipulated spatial perspective systematically: it was either consistently route, consistently survey, route switching to survey, or survey switching to route. We also included a measure of spatial ability in order to establish how much of the alignment and/or priming performance can be modulated by individual differences. It may be easier for participants with higher spatial ability to adopt a certain perspective choice than other participants given the underlying cognitive demands for switching between alternative views in priming in the route describing task in our experiments and the mental rotation task used as a measure of spatial ability.

3 Results

In this study, participants' choices of spatial perspective were affected by confederate priming—after hearing a confederate use a route perspective, an average of 66% of the descriptions (SD=38%) on the early block of trials were in the same route perspective while only 24% (SD=30%) were in the survey perspective, $F=19.627$, $p<.001$, $\eta_p^2=.282$. Priming of a similar

magnitude also occurred on the later block where route perspective descriptions by the confederates were followed by 69% (SD=38%) route perspective descriptions and 25% (SD=39%) survey perspective descriptions by the participants, F=16.957, p<.001, η_p^2=.253. Furthermore, there was an effect of early priming on the later participants' responses as well, F=.8.128, p=.006, η_p^2=.145, and no interaction between early prime and later prime. These two priming sources have an additive effect.

We were particularly interested in examining the role that individual differences in spatial ability may play in priming participants' choices. Participants were divided into two groups on the basis of their Mental Rotation Test (MRT) scores: low MRT (M=5.85, range 3-8) and high MRT (M=11.80, range 9-17) performance. Although participants in the high MRT group were primed more by confederate use of the survey perspective on the early block (85% survey vs. 33.5% route perspective descriptions) than those in the low MRT group (74% survey vs. 34% route perspective, respectively), the interaction between spatial ability and primed perspective did not reach significance. There was even less difference across low and high MRT groups on the degree of priming in the later block.

4 Conclusion

We conclude that both priming of spatial perspective and alignment in spatial perspective can occur in highly similar tasks, which implicates common underlying components of the two phenomena. On the other hand, although individual differences in priming and alignment deserve further exploration, individual spatial ability appears to play a minor role here.

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Reference

Pickering, M., and Garrod, S. 2004. The Interactive Alignment Model. *Behavioral and Brain Sciences,* 27(2):169-189.