
Exhuming the procedural common ground: partner-specific effects

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Introduction

One of the central findings in dialogue research is that interlocutors rapidly converge in their use of referring expressions, and that this convergence is driven by the interaction: if interlocutors are able to provide each other with communicative, turn-by-turn feedback, this leads to the quicker development of representations that are more concise (Clark, 1996), more compositional (Garrod et al, 2007), more systematic and more abstract (Healey, 1997), and are also more tailored to specific conversational partners (Healey and Mills, 2006; Brown-Schmidt et al 2007).

1 Procedural co-ordination in dialogue: Complementary contributions

However, in addition to co-ordinating on the content of referring expressions, interaction in dialogue also requires procedural co-ordination: interlocutors must co-ordinate on the sequential and temporal unfolding of their contributions. Empirical studies of conversational interaction have demonstrated that procedural co-ordination is underpinned by interlocutors' use, not of the same, but of different kinds of contribution. For example, questions are usually followed with answers, not with another question, requests are usually followed with compliance, not with counter-requests, praise is usually followed with self-denigration, and offers with acceptance. These adjacency-pairs (Schegloff, 1992) are conventions which operate normatively, and consist of a first-pair part and a second-pair part, performed by different speakers. A central feature is that their successful use typically requires interlocutors to perform different and complementary contributions on subsequent

turns. However, both conversation analytic and cognitive studies of interaction have treated these adjacency pairs as already shared and known to be shared by interlocutors, and do not study how interlocutors converge on them in the first place. It is also unclear whether convergence is driven primarily by egocentric processes (i.e. relatively low-level routinization), or whether interlocutors readily associate these conventions with specific conversational partners.

2 Alphabetical sorting task

To address these questions, we report a collaborative 3-participant task which presents participants with recurrent procedural co-ordination problems. Participants communicate via a text-based chat tool (Healey and Mills, 2006). Each participant's computer also displays a task window containing randomly generated words. Solving the task requires participants to combine their lists of words into a single alphabetically ordered list. To select a word, participants type the word preceded with "/". To ensure collaboration, participants can only select words displayed on the other participant's screen and vice versa. Note that this task is trivial for an individual participant. However, for groups of participants, this task presents the co-ordination problem of interleaving their selections correctly: participants cannot select each other's words, words can't be selected twice, and words need to be selected in the correct order (See Mills, 2011 for a similar task).

To examine whether participants readily associate these conventions with specific conversational partners, the 3 participants were divided into a main dyad and a second side-participant. The task was configured such that at key moments in the development of the conventions, the side-participant is only required

to observe the interaction, but does not directly participate in establishing the conventions.

To test for partner-specific effects, we drew on the method of (Healey and Mills, 2006) of using a chat server to intercept and selectively manipulate participants' turns in real-time. This technique is used to generate artificial clarification requests that query the procedural function of participants' turns. The apparent origin of these clarification requests is manipulated to appear as if they originate from either of the 2 other participants (Main Dyad vs. Side participant).

Comparison of the responses to these two types of artificial clarification request allows direct testing of the hypothesis that interlocutors associate the co-ordination they achieve with specific conversational partners.

3 Results

We demonstrate that participants' responses to these clarification requests provide strong evidence of interlocutors associating procedural conventions with specific partners. Despite the clarification requests having exactly the same surface form (all that differs is their apparent origin), responses to both types of clarification are treated differently: Participants are slower to respond to clarification requests from the side-participants, their responses are also longer, contain more self-corrections, and they also subsequently make more mistakes in the task. Drawing on global interaction patterns in the task, we also demonstrate that these partner-specific effects are sensitive to the specific sequential location in the dialogue where problematic understanding is signaled.

4 Complementarity, Convergence and Conventionalization.

We argue that focusing on procedural co-ordination suggests a more nuanced view of convergence in dialogue. The rapid development of conventions consisting of complementary contributions suggests that the global development of procedural co-ordination that occurs over the course of the interaction involves systematic *divergence* at a local turn-by-turn level. Drawing on participants' patterns of interaction in the task, we argue that this differentiation is indicative of a greater "forward momentum" in the interaction, as it indicates that

participants have converged on what the next relevant step is in the dialogue. By contrast, high levels of local convergence between turns is indicative of lower levels of communicative success, as this typically indicates that interlocutors have halted the interaction in order to identify and resolve problematic understanding.

We also argue that the finding of partner-specific effects also points towards differentiation and divergence occurring at more global levels of interaction – although all the participants are exposed to exactly the same communicative behaviour from each other (they all see the same interaction unfold on the screen), as they become more co-ordinated in the interaction, the main dyads and the side-participants systematically adopt different procedural conventions that become progressively complementary as their roles diverge.

5 References

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