Full alignment of some but not all representations in dialogue

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Studies that find differences between the quality of comprehension of interlocutors and of overhearers (e.g., Schobert & Clark 1989; Wilkes-Gibbs & Clark 1992) might be taken as evidence to support the idea of radically different cognitive processes in interactive discourse. They need not be. In such studies interlocutors had opportunities for feedback and repair that the overhearers lacked. Because different people will misunderstand different things, those who can ask for clarification will receive feedback that is relevant to them and consequently might understand better. Therefore any difference between such noninteractive and interactive comprehension could be fully attributable to strategic, effortful feedback but not necessarily to automatic alignment. In fact, Barr and Keysar (2002) found that even when such feedback is removed, listeners who believed themselves to be overhearers automatically aligned their semantic representations with the speaker's to the same degree as listeners who believed themselves to be addressees.

In closing, far from qualitatively changing the nature of processing, it is likely that dialogue provides a radically different context in which the same processes operate. The context includes an interlocutor and mechanisms for feedback and interactive repair. For us there is no question that it is important to study conversation in vivo, but it remains to be seen whether this would reveal automatic processes that are truly unique to dialogue.

NOTE
1. In their seminal work on common ground, Clark and Marshall (1981) clearly make the case that common ground is a form of metaknowledge that is conceptually distinct from shared knowledge. What 2. Pickering & Garrod are referring to by “explicit common ground” is really just shared knowledge, not common ground, because interlocutors need not represent the fact that their representations are shared. Such usage is certain to contribute to the legacy of confusion that has plagued discussions of mutual knowledge and common ground (see Keysar 1997 and Lee 2001 for discussion).

Full alignment of some but not all representations in dialogue

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Abstract: I argue that alignment of linguistic representations and situation models in dialogue are qualitatively distinct. By virtue of the isomorphy between interlocutors’ linguistic representations, interlocutors align their linguistic representations fully. However, evidence about situation models is indirect and mediated through language, with the result that their linguistic representations are quite different. With linguistic representations aligned in the same way as linguistic representations, interlocutors genuinely employ aligned (i.e., identical) representations in both producing and comprehending utterances. But are situation models aligned in the same way as linguistic representations? It is unclear that this is the case. In P&G’s model, interlocutors’ situation models act directly upon one another (see the authors’ Fig. 2), in the same way as syntactic, lexical, and morpho-phonological representations do. Alignment of situation models is taken as critical for successful communication. But situation models differ qualitatively from strictly linguistic representations. A speaker’s utterances do not give direct evidence of the situation model that the speaker holds, only indirect evidence encoded in linguistic representations, from which the listener has to infer the speaker’s situation model. So whereas an utterance like I am in row two gives direct evidence about the speaker’s syntactic, lexical, and morpho-phonological representations, it gives only indirect evidence about the speaker’s situation model. The listener must construct a situation model based upon his or her interpretation of the speaker’s meaning – which may or may not be correct. Of course, as P&G note, misunderstandings may come to light, and interlocutors may initiate repairs to bring about situation models that are aligned in the relevant aspects. But as they also note, some misunderstandings may not be repaired. In fact, it seems likely that interlocutors quite frequently have situation models that are misaligned in major respects. Communication will be (apparently) successful as long as the misalignment is not apparent to the interlocutors. To take P&G’s example of interlocutors using John to refer to different people, it is quite possible for them to have a mutually satisfying dialogue concerning this person without ever realising that they are discussing different people; unless one of them says something that is inconsistent with the other’s knowledge, they can successfully (for their purposes) complete a dialogue with quite radically different situation models. Equally, a doctor and a patient may have a dialogue concerning the patient’s chronic back problem that appears to be successful, in that they are both satisfied that they understand each other well; yet their situation models may differ considerably because of unresolved (and unapparent) differences in their interpretation of chronic. Situation models need only be aligned sufficiently for the current communicative goal to be (apparently) met.

So it seems that alignment of situation models and alignment of linguistic representations are quite different. With linguistic representations, interlocutors genuinely employ aligned (i.e., identical) representations that act directly upon one another; whereas, because evidence for situation models is only indirect, interlocu-
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Tutors rarely if ever have identical models. Instead, they have partially aligned models that may differ in many – sometimes important – respects. And because evidence for situation models is mediated through language, it seems highly unlikely that they can act directly upon one another (contra P&G’s Fig. 2).

One interesting result of the distinction between alignment of linguistic and situation models is that alignment of linguistic representations may sometimes lead to misaligned situation models. Garrod and Clark (1993) found that young children had a tendency to use the same words to describe a maze – that is, showed lexical alignment – even when their situation models were quite different. Similarly, in the case of the doctor-and-patient scenario, one speaker’s use of the term chronic may well reinforce the other’s use of the same term, leading to more misunderstanding than if a different term were used. In both examples, full alignment at the linguistic level misleads interlocutors into believing that they also have alignment at the level of situation models.

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Two steps forward, one step back: Partner-specific effects in a psychology of dialogue

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Abstract: Pickering & Garrod’s (P&G’s) call to study language processing in dialogue context is an appealing one. Their interactive alignment model is ambitious, aiming to explain the converging behavior of dialogue partners via both intra- and interpersonal priming. However, they ignore the flexible, partner-specific processing demonstrated by some recent dialogue studies. We discuss implications of these data.

In human language processing, the whole is greater than the sum of the parts; therefore, those who study the language processing system in dialogue contexts are poised to make different sorts of discoveries than those who study the parts working alone. Pickering & Garrod (P&G) present a convincing argument that psycholinguists should pay attention to dialogue. In fields such as artificial intelligence and human-computer interaction, where the goal is often to build a fully working dialogue partner, many will find this a worthy enterprise as well. After presenting evidence for phonological, lexical, and syntactic convergence between dialogue partners and for representations shared between comprehension and production, P&G make a strong claim that is far less convincing: “normal conversation does not routinely require modeling the interlocutor’s mind” (sect. 4.4, para. 4). They support this position with evidence from studies that fail to meet the very standards they seek to address naturally or provide contingent feedback. Sometimes this matters; for example, Brown and Dell (1987) concluded that speakers did not take addressees’ specific needs into account when retelling stories; but their addressees had no needs (they were confederates who knew the stories better than the speakers did). When we ran a similar study using spontaneously interacting speakers and addressees (Lockridge & Brennan 2002), speakers’ early syntactic choices indeed showed sensitivity to addressees’ needs.

There is additional good evidence of rapid, partner-specific effects from the comprehension side. Hanna and Tanenhaus (2004) asked addressees to follow a (confederate) speaker’s directions in a cooking task (e.g., Hand me the cake mix); the addressees’ eye fixations showed that they restricted candidate referents for ambiguous expressions (e.g., when two cake mixes were present) depending on what the speaker was holding and what she could not reach; they did this from the earliest moments of processing.

And we have demonstrated that addressees interpret the same utterance differently when it is spoken by different speakers with whom the addressees have different dialogue histories (Metzing & Brennan 2003). In our experiment, addressees were instructed by (confederate) speakers to reposition objects among a relatively large set; they did this several times, evolving shared perspectives and terms for critical objects (e.g., the shiny cylinder). Then the speaker left the room and either returned or else a new confederate speaker entered. In the final trial, the new or old speaker used either the familiar term or a new, equally good term (e.g., the silver pipe) for the same critical object (amid many other references that did not use different terms). Addressees gazed immediately at the object when either speaker used the old term. However, when the old speaker used a new term (inexplicably breaking a conceptual pact), addressees experienced interference, delaying gazing at the target object. There was no such delay when the new speaker used the new term (in fact, resolving this was just as fast as the old term spoken by the new speaker). This partner-specific interference suggests that the pragmatic force of breaking a conceptual pact has impact immediately, rather than just as a late adjustment or repair.

Such immediate effects provide evidence of impressive agility and potential for partner-specific processing in the language processing system, which the interactive alignment proposal fails to address. Pragmatic and partner-specific knowledge is implemented by basic mechanisms of memory and does not rely on special processes or exhaustive partner models. Audience design – truly partner-specific processing – can occur immediately and effortlessly as well as more slowly and deliberately, depending on...