

Conceptual Alignment in Conversation

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Conversation is a primary site for inferring what is going on in other minds. The words and sentences people say, as well as how they say them, give strong evidence about their communicative intentions, any other intentions they may not intend to communicate, and about their mental states more generally. Just how reliable is this evidence? When people believe they have understood what is going on in each other's minds, how often are they right?

Views on these questions vary substantially, both on the street and among scholars, in part because they raise even more fundamental questions about the nature of language and about the nature of mental states. Does language simply encode mental states transparently, or are mental states not the sort of thing that language can embody directly? How much of thinking is encodable in the discrete and linear forms that language requires, and how much is ineffable and inarticulable? Do speakers of a particular language share identical context-free meanings of words, or do individuals differ in their semantic representations based on their personal experience of the world so that their personal meanings overlap only partially with other people's personal meanings?

Here I focus on one question among this larger set: To what extent

do conversational partners mean exactly the same thing when they use the same words? Now, obviously conversational partners sometimes fail to understand each other's references. When Jennifer says to Don, "Look at that man?" Don may at first fail to recognize which man she is pointing out. To resolve this reference failure, Jennifer and Don can use any of the well-documented conversational techniques that speakers and addressees have for just this sort of problem (see Clark, 1996; Clark & Wilkes-Gibbs, 1986; Schegloff, 1988, among many others). Don can ask "Which man?" or Jennifer can clarify the reference without explicit prompting when Don doesn't respond appropriately ("You know, the one with the unusual hair"). They can take several conversational turns to agree that they have understood each other well enough for their current purposes—that they have *grounded* the reference, to use Clark's term.

The issue I raise here, although related, is a bit different. To what extent is Don's conceptualization of "man" (either in general or at the moment of Jennifer's reference) the same as Jennifer's? The fact that Jennifer and Don can agree that they are talking about the same man—that they have successfully used the word "man" for referring—does not guarantee that their mental representations for what counts as a man are identical. And this may be independent of how many turns it takes for them to establish the shared reference.

I propose that linguistic coordination is deceptive, and that it can mask undetected—even unsuspected—conceptual misalignment. Conceptual misalignments occur when interlocutors' mental representations have different content, for example when one person's category includes different exemplars or prototypes than the other's, or when one person's concept is elaborated in greater detail than the other's. A misalignment will be undetected if it doesn't lead to a reference failure, because the interlocutors will never think that they need to uncover it. So, for example, Jennifer and Don may happen to have different intuitions about membership in the category "man": different notions about when a teenager is old enough to be called a man, whether a presurgery female-to-male transgendered individual counts as a man, or whether inanimate statutory allows a human reference. But this won't come into play for many occasions of referring to "that man," because the misalignment isn't relevant for those circumstances. Only when circumstances are relevant to the misalignment, and when the conversationalists' desire for precision is high enough, might a misalignment be detected.

This proposal runs counter to the kind of argument advanced by Pickering and Garrod (2004) that linguistic coordination in dialogue automatically leads to conceptual alignment. Under that view, listeners' comprehension processes parallel speakers' production processes, and so

when speakers use words, listeners' own (presumably identical) representations of the meanings of those words are automatically activated. Conceptual alignment is thus a natural feature of language use in dialogue.

I think the story is more complicated. I am not convinced that the evidence for automatic alignment is as compelling as Pickering and Garrod argue (see Schober, 2004, and the other replies for details). I am not convinced that people's conceptual misalignments are always detected, nor that people are particularly good at judging how aligned they are. And I suspect that undetected conceptual misalignments can have more serious consequences than one might at first think. Consider arguments—from spousal to international—about politically charged issues like abortion and euthanasia. If interlocutors don't know that they are considering quite different instances even though they are using the same term, the direction of argumentation and the resulting conflicts can escalate dangerously (see Schober, 1998b). Or consider whether job applicants or students taking standardized tests actually interpret the words in the questions and instructions in the same way as those administering job interviews and designing tests. If they do not, then school admissions and employment prospects could be judged on criteria other than those that test designers and interviewers intend, and in ways that exacerbate (or even create?) societal bias.

My main piece of evidence for this proposal comes from studies on how people comprehend ordinary terms in standardized survey interviews about facts and behaviors (e.g., Belson, 1981, 1986; Conrad & Schober, 2000; Schober & Conrad, 1997; Schober, Conrad, & Fricker, 2004; Suessbrick, Schober, & Conrad, 2000). Such studies provide a useful entry into conceptual alignment in several ways.

STANDARDIZED SURVEYS

What makes surveys a good setting for studying conceptual alignment? First, unlike more artificial laboratory settings, a survey interview is a compelling real-world conversational arena in which conceptual misalignment can have serious consequences. Influential public policy and economic choices are made based on findings collected entirely from survey interactions in the U.S. Census (e.g., political redistricting and corporate moves based on changing demographics) and the Current Population Survey (e.g., federal and Wall Street decisions based on changes in the unemployment index). In this sort of situation, if survey respondents regularly conceptualize words in questions differently from the survey designers, the results could be disastrous.

Second, conceptual misalignment can be measured in surveys about facts and behaviors. Designers of major U.S. surveys have well-developed definitions for the terms used in those surveys, with extensive detail on what should be counted as (for example) a "job" or a "household member" for purposes of the survey. If we also have evidence about respondents' actual circumstances (what their job or living situation is like), we can then use respondents' answers to survey questions to assess whether their conceptualizations match the survey designers'. For example, if a respondent reports that her college-age child who lives in a dorm most of the year is a member of her household, we have evidence that her conceptualization of "household member" differs from that of survey sponsors who do not include children away at school.

Third, the predominant approach advocated for carrying out large-scale surveys is strictly standardized interviewing, in which the interpretation of terms in questions is left entirely up to respondents (e.g., Fowler & Mangione, 1990). If respondents request clarification of terms, interviewers are instructed to probe nondirectively: to simply repeat the question, repeat the response alternatives, or say something like "whatever it means to you." (The logic behind this is that if some interviewers defined terms for respondents and others didn't, the survey stimuli would no longer be uniform.) The fact that clarification in such surveys is forbidden means that we can assess respondents' untutored conceptualizations "in the wild."

Note that standardized interviewing techniques that leave the interpretation of words up to respondents embody precisely the same set of assumptions about the nature of linguistic meaning and about the problem of other minds that I am questioning. These assumptions include that wording and meaning are the same thing (see Schober, 1998a; Schober & Conrad, 2002; Suchman & Jordan, 1990), that conceptualizations within a community are functionally identical (see Pickering & Garrod, 2004), and that survey pretesting adequately uncovers most conceptual misalignments.

The studies described here extend findings from more controlled laboratory studies on how respondents answer questions about fictional scenarios (Schober & Conrad, 1997; Schober, Conrad, & Fricker, 2004). Here respondents answer questions about their actual life circumstances. As we did not have access to respondents' actual circumstances through official records or diaries (which can themselves be inaccurate), we measured conceptual alignment using two postsurvey measures.

In both studies, after answering the survey questions respondents answered more questions that allow us to infer their interpretations. One kind of question asked respondents to explain what they had included in their answers, either by listing examples or by answering

multiple-choice questions about their interpretations. Another kind of question asked respondents to answer the same survey questions again, given standard definitions of the terms in the questions. If responses changed, then this suggests not only that respondents' initial conceptualizations were misaligned with the survey designers' but also that the misalignment was consequential enough that it had affected the survey data.

STUDIES

In one study (Conrad & Schober, 2000), 227 respondents from a nationally representative sample of residential households with telephones in the continental United States were interviewed by 10 professional telephone interviewers. Each respondent, after agreeing to participate in two different interviews 1 week apart, was asked 10 questions from ongoing U.S. government surveys. Five questions about housing, each requiring a numerical response, were taken from the Consumer Price Index Housing survey; respondents were asked how many bedrooms, full bathrooms, half-bathrooms, and other rooms other than bedrooms and bathrooms were in their home, as well as how many people lived in their home. Five questions about purchases, each requiring a yes/no response, were taken from the Current Point of Purchase Survey; respondents were asked if during a particular period (the past month, the past year) they had had any purchases or expenses for moving, telephones or telephone accessories, inside home maintenance or repair services, household furniture, and whiskey or other alcohol for home use. If respondents answered "yes" to any of these purchase questions, they were asked to list what those purchases had been. Interpretation of the terms in the questions was left entirely up to respondents; if respondents asked for clarification, interviewers politely repeated the question or otherwise refused to clarify.

One week later, the same respondents were interviewed again by 10 different interviewers. Exactly the same questions were asked the second time. This time, half the interviews were again carried out with no clarification of survey terms, following the norms of strict standardization. The other half were carried out by interviewers trained to make sure that respondents had interpreted the survey terms as the survey designers had intended. These interviewers were licensed, after initially reading the question exactly as worded, to present any or all of the complete official definitions for terms in the questions, in their own words or reading the scripted definition. For example, when respondents in this sort of interview were asked how many people lived in their home, interviewers could present any or all of this definition:

A person is considered to be living in a housing unit even if the person is not present at the time of the survey. Live-in servants or other employees, lodgers, and members of the household temporarily away from the unit on business or vacation are included in the count. Do NOT count any people who would normally consider this their (legal) address but who are LIVING away on business, in the armed forces, or attending school (such as boarding school or college). Do NOT count overnight lodgers, guests and visitors. Do NOT count day employees who live elsewhere.

Interviewers could present clarification either when respondents explicitly requested it or also if they got the sense that presenting the definition or asking further questions would help a respondent interpret the question as intended.¹ Not surprisingly, these more collaborative interviews took longer to implement than the strictly standardized interviews.

Conceptual alignment between the respondents and survey designers was measured in two ways. First, the extent to which responses in the second interview differed from those in the first interview was assessed. If responses changed more when the second interviews included clarification, this would suggest that the initial interviews involved notable conceptual misalignment. Second, all the purchases that respondents had listed in both interviews were coded for whether they matched the requirements of the official definitions. This allowed assessment of whether changes in responses resulted from improved conceptual alignment.

The results showed that respondents had substantial undetected conceptual misalignment in the strictly standardized interviews. Twenty-two percent of responses changed when the second interview involved clarification, twice as many as the 11% response change when the second interview did not allow clarification.² Moreover, the response change in the interviews that allowed clarification did indeed reflect improved conceptual alignment. Among the purchases that respondents listed in the second (collaborative) interview, they correctly included items they had incorrectly excluded in the initial standardized interview: 90% of the purchases that were now listed in the interviews with clarification but that had not been included in the first interview matched the survey definitions. Similarly, respondents correctly excluded what they had erroneously included before: 89% of the purchases listed in the first interview that were now excluded with clarification had involved conceptual misalignments. (In contrast, for respondents who never received clarification, their listed purchases in the second interview were no more likely to reflect conceptual alignment than those in the first interview.)

Two more points about conceptual misalignment emerge from the

data. First, the nature of the misalignments differed for different terms. For some of the question terms, the misalignments revolved around a few features of the official definitions. For example, for “moving” purchases, the vast majority of misalignments had to do with the fact that many respondents included personal expenses like van rental and hotel stays as moving expenses, while the definition excluded them. This would suggest not only that the misalignment is easily resolved (a simple rewording of the question should relieve it) but also that the population of respondents had substantially overlapping conceptions of what counts as moving. That is, despite the misalignment with the official survey definition, most respondents seemed to be conceptually aligned with one another. In contrast, for other terms (like “inside home maintenance or repair services”) respondents were not at all aligned either with the survey designers or with one another; the substantial number of misalignments was distributed throughout all features of the official definitions.

Second, despite the substantial conceptual misalignments, respondents gave almost no evidence of being aware of them. Respondents in the interviews that allowed clarification were specifically instructed that this interview would allow clarification and that they should request it if they had even the slightest doubts about what any terms in the questions meant. Yet, in a subsample of 35 transcribed interviews, respondents explicitly requested clarification for only 6 of 165 questions—4% of the time.

A second study (Suessbrick, Schober, & Conrad, 2000) examined conceptual misalignment in a full-length survey that included both behavioral and opinion questions. The survey was the Tobacco Use Supplement to the Current Population Survey, which measures people’s knowledge of and opinions toward smoking and tobacco use, and changes in their use over time. The survey is sponsored by the National Cancer Institute and administered by Census Bureau telephone interviewers; respondents answer from 12 to 36 questions, depending on their path through the survey.

The terms in the survey questions do not, on the surface, seem in any way ambiguous. Behavioral questions include “Have you smoked at least 100 cigarettes in your entire life?” and “Have you ever stopped smoking for one day or longer because you were trying to quit smoking?” Attitude questions include “In restaurants, do you think that smoking should be allowed in all areas, allowed in some areas, or not allowed at all?”

Official definitions existed for some of the questions, as in “*Past 12 months* means 12 months from today, NOT from the first of the month and not just the last calendar year.” We supplemented them with additional definitions for undefined survey concepts, as in “*By smoked* we

mean any puffs on any cigarettes, whether or not you inhaled AND whether or not you finished them.”

Fifty-three respondents were interviewed by telephone in a laboratory by 10 experienced Census Bureau interviewers implementing strictly standardized procedures. No clarification of terms in the survey was ever given, even if respondents asked for it; respondents were required to interpret questions for themselves. After the telephone survey, respondents filled out two extended questionnaires. In the conceptualization questionnaire, they were asked multiple-choice questions probing how they had interpreted terms in each survey question they had answered in the telephone survey; for example, respondents were asked whether in answering the survey question “Have you smoked at least 100 cigarettes in your entire life?” they had interpreted “cigarettes” as including manufactured cigarettes, hand-rolled cigarettes, marijuana cigarettes, cigars, clove cigarettes, or something else (respondents were to pick all that applied). In the self-administered re-interview questionnaire, they answered the same survey questions as in the telephone interview; this time, half the respondents were to answer the question following a standard definition like the following (for “Have you smoked at least 100 cigarettes in your entire life?”):

We want you to include any puffs on any cigarettes, whether or not you inhaled AND whether or not you finished them. We want you to include hand-rolled cigarettes as well as manufactured ones, and tobacco cigarettes with additives like cloves. We DON’T want you to include cigars or nonbacco cigarettes, like marijuana cigarettes.

The results suggest that respondents’ conceptualizations were frequently misaligned with the official definitions and with the other respondents’ interpretations. On the multiple-choice questionnaire, an average of fewer than 50% of responses perfectly matched the official definitions. Conceptual alignment was poor both for opinion questions (46% matched with official definitions) and for behavioral questions (33% matched). And this wasn’t simply because the official definitions failed to reflect uniform interpretations held by the population of respondents; respondents’ interpretations were not uniform but distributed among multiple interpretations. For the 37 concepts in questions answered by all respondents, on average only 51% of respondents endorsed the majority interpretation. For example, 46% of the respondents reported they had only considered “smoking” to include puffs that were inhaled; 54% reported that they included all puffs, whether or not they were inhaled. Similarly, 23% of respondents reported that they had interpreted “cigarettes” as including only cigarettes that they had fin-

ished smoking; 23% reported including both cigarettes they had finished or that they had only partly smoked; and 54% reported including any cigarettes they had taken even one puff of.

So, not only did respondents’ self-reported interpretations match the survey definitions less than 50% of the time, they also did not match each other’s. This conceptual variability is, of course, only interesting in practical terms if it affects the responses—and it did. Without a standard definition on the re-interview questionnaire, respondents changed fewer than 6% of their answers. With a standard definition, respondents changed 10% of their answers to the behavior questions and 16% of their answers to the opinion questions.

As in the previous study, respondents seemed quite unaware of their conceptual misalignments—or at least unwilling to do anything to resolve them during the initial telephone interviews. In two additional conditions of the experiment, 51 additional respondents were trained to ask for clarification during the telephone interview if they ever felt they needed it; in one condition interviewers were also trained to offer clarification if they believed the respondent needed it. Despite these instructions, only one respondent ever asked for clarification, and this only once. And despite extensive training on the potential for respondents’ conceptual misalignments, interviewers almost never offered clarification. All in all, it didn’t seem to occur to respondents or interviewers that respondents could conceive of terms in these questions differently than intended.

Conceptual misalignment can have consequences beyond understood misunderstanding of a current reference; it can affect subsequent interaction as well. In this study, it led some respondents down the wrong line of questioning in the survey. The first question in the survey is “Have you smoked at least 100 cigarettes in your entire life?”; depending on whether respondents answer yes or no, they are led down the path of being a smoker or a nonsmoker. Among the 78 respondents who were given standard definitions in the re-interview questionnaire, 8 of them—10%—changed their responses to this question. This means that 10% of the respondents had been asked the wrong questions or hadn’t been asked the right questions, and at a rate that could actually affect the substantive survey data.

QUESTIONS

These findings raise as many questions as they answer. Obviously they raise practical questions for survey researchers about how best to assure uniform interpretation of the survey questions they ask; if different

respondents don't recognize that their conceptions may differ from survey designers', then standardized interviewing may unintentionally *increase* measurement error (Houtkoop-Steenstra, 2000; Schober & Conrad, 1997, 2002; Suchman & Jordan, 1990). These questions are serious not only for telephone interviews but also for face-to-face interviews (see Conrad, Schober, & Dijkstra, 2004), Web surveys (Schober, Conrad, & Bloom, 2000), and paper-and-pencil surveys. My colleagues and I (Schober, 1998a, 1999; Schober, Conrad, & Fricker, 2004) would argue that they raise the same questions for anyone who uses standardized wording in settings that don't allow clarification: designers of standardized educational tests, intelligence tests, tax forms, computer interfaces, experiment instructions—even newspaper reporters, novelists, and writers of scholarly research articles.

These issues are fundamental ones for investigating the problem of other minds. To what extent do other people's conceptualizations match our own? And under what circumstances do any conceptual misalignments matter? The data from these studies suggest at least one part of an answer: people's conceptualizations can match less often than common wisdom and prevailing theories suggest. And undetected conceptual misalignment is not benign precisely in those situations where there are consequences to categorizing events or objects differently than one's interlocutor, as in surveys where the accuracy of the data matters.

The data raise yet more fundamental questions. To what extent do people have stable and inflexible definitions of words? Just as people's judgments of category membership seem more flexible than classical theories suggest (see reviews in Margolis & Laurence, 1999), perhaps people's semantic systems are less stable than has been assumed. Our survey respondents seemed perfectly willing and able to conceive of "smoking" through an alternate lens when it was required of them. And certainly the evidence from other contexts of language use is that people can use the same words quite variably to refer to different entities. Is there such a thing as a context-free core for each concept, rigid across circumstances? Do different people have different cores, or can even the same people shift meanings as circumstances require?

The data also raise the question of whether and how accurately people build models of their conversational partners, and the role such models play in online processing (see Schober & Brennan, 2003). Our survey respondents did not seem particularly aware of the potential for conceptual misalignment. Why not? Although we can't rule out the possibility that some of our survey respondents simply didn't care enough to try hard to resolve misalignment, this can't be all there is to it; when given standard definitions, respondents willingly changed their answers to fit those requirements. I believe the issue reflects what Herb Clark and I

have called the *presumption of interpretability* (Clark & Schober, 1991). At some level, respondents presumed that their concepts (which were, after all, quite ordinary—bedrooms, smoking, living in a home) matched survey designers'. Just as in spontaneous conversation, survey respondents presume that their partners have designed utterances with them in mind, and interpret accordingly. The addressee presumes that if a speaker intends something by an utterance other than what the addressee initially takes it to mean, then it is the responsibility of the speaker to clarify it; otherwise, the addressee is licensed to go with his or her initial interpretation.

Another question: Even if people don't consciously recognize conceptual misalignments, do they provide any signs of processing difficulty that would show implicit knowledge? The evidence from surveys thus far is that even when respondents don't think the misalignments are problematic enough to ask for clarification, they can still "leak" clues of it in the way they talk. Respondents are more likely to use "um" and "uh," restart their utterances, or describe their circumstances rather than answering the survey question in situations of potential conceptual misalignment (Schober & Bloom, 2004). Various paralinguistic and facial cues seem to indicate people's processing difficulty, whether or not the cues are intended as communicative signals (Clark, 1994, 1996), and listeners seem to make use of speakers' clues in their moment-by-moment comprehension processes (e.g., Arnold, Tanenhaus, Altmann, & Fagnano, 2004; Brennan & Schober, 2001; Fox Tree, 1995, 2001). On the other hand, some percentage of conceptual misalignments seem entirely undetected: In our survey study (Schober & Bloom, 2004) sometimes survey respondents provided no clues of trouble at all, answering quickly and confidently even when conceptually misaligned.

Despite all the questions, what is clear is that linguistic alignment does not guarantee conceptual alignment and that undetected misalignments can have serious consequences. This is consistent with the long skeptical tradition arguing that we cannot be certain that the contents of other people's minds are identical to our own. The trouble—for researchers and for interlocutors—is that it remains unclear exactly when undetected misalignments are having consequences worth worrying about. For Jennifer and Don referring to "that man," the consequences are probably negligible; for high-stakes surveys the consequences can be serious. It is unknown how well conceptualizations match, and how often consequential misalignments are undetected, in other discourse settings. The implication is that when we are in high-stakes situations, like international negotiations and marital disputes, we might be wise to check the extent to which we understand other people's words in the same way.

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NOTES

1. Interviewers varied substantially in the strategies they took, as one might expect if they were adapting to the different conversational needs of different respondents. As more controlled laboratory studies (e.g., Lind, Schober, & Conrad, 2000; Schober, Conrad, & Fricker, 2004) have confirmed, what is crucial is whether respondents get the relevant piece of a definition, not whether they receive it at their request.
2. An 11% rate is not unusual for re-interviews in large-scale surveys, and no doubt reflects multiple sources: memory errors at one time or another, actual changes in life circumstances—and most interestingly for our purposes, possible instability of conceptualizations within individuals.

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