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Expectations of common ground with a computer dialog agent

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Abstract: The time required to comprehend referring expressions is influenced by many contextual factors that establish expectations, including attributes of the referent and competitors, the discourse history, and the common ground between dialog partners. When human partners violate expectations by, for example, breaking a conceptual pact to maintain a referential perspective across mentions, listeners incur processing costs. But listeners don't have difficulty when other partners refer differently. We use this response pattern to examine whether subjects process discourse from computer agents the same way as from human partners, and what expectations they have of multiple agents. As computer dialog systems mature, we expect individual computers to be running multiple dialog agents playing diverse roles: information butlers, virtual salesmen, health coaches, etc. Knowing more about the expectations humans have of these dialog partners is a fundamental first step toward designing algorithms that can generate referring expressions that are easy to comprehend.