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An observational study of grounding processes in dialogues by the aged people

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How do older adults understand each other in dialogues? Is the process of understanding different from that of younger ones? A study of disfluency rates in conversation reports that older people produced more restarts, repeats, and fillers than younger people did (Bortfeld, et al., 2001). Another study compared dyads of young-young, old-old, and young-old and reported young speakers adopted a simplified speech style when addressing the older listeners (Kemper & Vandeputte, 1995). A study of communication impediments caused by aging reports that patronizing communication are used toward older adults (Ryan, et al., 1995). A study of word-finding difficulties reports that non-frequently-used-words were more difficult to catch than frequently used words, and that abstract words were more difficult to catch than concrete words (Tatsumi, 1997). However, little is known about internal speech processing by aged people.

The purpose of this study is to investigate the characteristics of "grounding processes" in dialogues by aged people, employing the theoretical framework in Clark (1996). Clark considers language use as a form of joint action, "carried out by an ensemble of people acting in coordination with each other." According to Clark, a participant of a joint action need be aware that he or she is included in part of the joint action and need to know that the other

party has the same awareness of the same situation. In dialogue, we both have to believe that two of us are conducting the dialogue together. The belief is called common ground. Common ground is accumulated as dialogue proceeds, and the accumulated common ground becomes base of following dialogue. The process is called grounding. Clark defined that "to ground a thing is to establish it as part of common ground well enough for current purpose."

In apply this notion of grounding to dialogues in older dyads, we employ the finite-state transition model of grounding processes due to Traum (1994), and classify each utterance unit into seven basic "dialogue acts," namely, initiate(init), continue(cont), acknowledgement(ack), repair, request repair(reqRepair), request acknowledgement(reqAck), and cancel, classification of seven grounding acts due to Traum (1994) as method. The classification is done solely from the speaker's point of view as opposed to the observer's, and it has certain practical advantages over Clark's original classification in terms of grounding contributions.

First, we conducted preliminary observations of 2 older dyads and 2 younger dyads. We found difference of repeating, silence, and grounded points.

We then conducted our main observations of 5 dyads of older adults (average age, 83) and 5 of younger adults (average age, 30.9). All of them were women. The recording of older dyads took place in a public "center for aged people," where the subjects regularly visit for chatting and other activities. The recording of younger dyads took place in a lounge space of the college for which they work. All older dyads had long-term relationship up to 60 years (?) and young dyads had 1-5 year relationship. We systematically picked out a 5-minute portion of each conversation, transcribed it, and annotated it by means of the seven grounding acts mentioned above. The annotations were tested by two other coders and found reliable ($k=.74$).

The result of observation shows that there are two types of conversation styles. One is the "non-turn-exchange type," characterized by less frequent turn-exchanges, less general-purpose acknowledgements, more confirmative-grounded points, and high-collaborativity. The other is the "turn-exchange type," characterized by opposite feature, namely, more frequent turn-exchanges, more general-purpose acknowledgements, less confirmative-grounded points, and low-collaborativity. The non-turn-exchange type is observed more often among older dyads, while the turn-exchange type was found more often among younger dyads.

More specifically, we found the following general tendencies in comparisons of older dyads and younger dyads.

1. Older and younger dyads grounded much the same in size.

The numbers of utterance units in two groups were almost the same (older adults, 1406; younger adults, 1309). The numbers of discourse units were also almost the same (older adults, 446; younger adults, 482). Furthermore, the ratios of annotated grounding acts were not significantly different. Discourse unit is "the level of structure at which conversational content is grounded"(Traum, 1994), so this implies that older adults do not need more utterances to understand in conversations.

2. Initiation-acknowledgment utterances were less frequent in older dyads.

Generally, an "acknowledgement act" appears at the end of a grounding unit, indicating that conversants have mutually understood what the presenter said. In contrast, an "initiation act" appears at the beginning of a grounding unit, initiating the presentation of a new information unit. Sometimes, a speaker performs both initiation and acknowledgement at the same time, by producing an initiation utterance whose content presupposes the understanding of the preceding presentation. We found that utterances with these two functions account for a 27% of all acknowledgment utterances by younger adults, while they account for only a 10% of those by older adults. Thus, conversations in older dyads had more dedicated acknowledgments, and turn-shifts produced by these double-function utterances were less frequent. This tendency, we suspect, might be the basis of the common impression that conversations by older people are slow-paced.

3. Older adults tended to use general-purpose acknowledgements more frequently.

Utterances annotated only 'acknowledgement acts' are divided into two groups. One group includes general-purpose acknowledgements, such as "uh-huh" and "m", that could be used irrespective of the contents of the preceding presentations, and the other includes non-general-purpose acknowledgements such as displays and repeats. Older adults produced more general-purpose acknowledgements (43%), and younger adults produced less (23%). General-purpose acknowledgements give only weak evidence of understanding than non-general-purpose ones, the relative frequent use of them by older adults may underlie the common impression that older people do not firmly understand things.

4. Older adults often acknowledged repeatedly.

In older adults conversation, several "request-for-acknowledgement acts" were observed after the discourse unit was grounded. No such phenomenon was found in younger adults conversation. This implies that older and younger adults take different points in dialogues as the times when the presented information is grounded. It suggests that the common impression of the "repetitiveness" of older people may be based not only on actual frequency of repeated speech but on this gap of recognized grounding points.

5. Older adults use more collaborative style.

"Collaborative completion" (Clark, 1996) were found more frequently in older dyads than in younger ones. Echoic responses were also found more frequently in older dyads. According to Tannen (1989), "repetition serves an over-arching purpose of creating interpersonal involvement." The two phenomenon therefore suggest that older adults have more collaborative tendency in conversations.