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How a Model Based on Linguistic Theory Can Improve the Assessment of Decision-Making Capacity for Persons with Dementia

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INTRODUCTION

The process of obtaining informed consent, in which a competent adult voluntarily agrees or declines to participate in a study, is at the core of the practice of ethical research.¹ In the case of persons with Alzheimer's disease and related dementias, this process becomes more complicated because it is not obvious whether the individual possesses decision-making capacity. Making an accurate determination of the decision-making capacity of persons with dementia is of paramount importance to providing protection, as well as maximizing their autonomy. This is becoming increasingly necessary and important as more research is being targeted at this rapidly growing population.² This determination can be extremely difficult because it requires judging abilities in persons with varying degrees of cognitive impairment, including those affecting communication itself.³

The most widely recognized clinical guidelines for assessing competency rely on four decision-making abilities (see table 1). Grisso and Appelbaum have developed an instrument to measure these abilities in the setting of clinical research using a structured interview format.⁴ But even with the help of these guidelines, the process of determining decision-making capacity still involves making judgments about whether the subject possesses the four decision-making abilities. More commonly, subjects are engaged in a less structured informed consent conversation about the proposed research, and the researcher or clinician then makes a judgment concerning the subjects' mastery of the four decision-making abilities. The clinician or researcher interprets this conversation through an extremely subjective, often intuitive process that frequently becomes the basis of the judgment about whether a person with dementia possesses decision-making capacity. Much of the research on validation of capacity assessment in persons with dementia uses cognitive models based

on performance on neuropsychiatric tests of executive function, semantic memory, and delayed recall.⁵ Considerably less attention has been paid to analyzing what actually occurs in the course of the informed consent conversation as a means for evaluating decision-making capacity; analyses of this type that do exist tend to focus on "error behavior," paying less attention to identifying behaviors that may provide positive evidence of decision-making capacity.⁶ Conversation is a complex process in which participants can perform many intricate and subtle maneuvers. We present a novel approach regarding the determination of decision-making capacity based on a linguistic analysis of the informed consent conversation, with special emphasis on the subset of linguistic theory known as *discourse analysis*. We suggest that knowledge of certain concepts in linguistic theory could assist researchers and clinicians in communicating with people with dementia as well as in assessing their decision-making capacity. We also propose that a method based on linguistic theory could be used to assist researchers in determining the decision-making capacity of people with dementia by aiding analysis of the informed consent conversation.

DEFINITION AND RELEVANCE OF DISCOURSE ANALYSIS

Discourse analysis is well-suited to illuminating the informed consent process because it involves the linguistic study of naturally occurring speech.⁷ We use a method of analysis proposed by Clark and Schaefer as the theoretical basis for an approach to the evaluation of decision-making capacity. The central tenet of conversational analysis is that conversation is a collaborative process with two goals. The first goal is the obvious one: transmitting information or content. The second goal, which is much less frequently appreciated, involves speakers establishing mutual agreement that understanding has been achieved. Using this model conversation can then be parsed into discrete elements: the "presentation," in which a speaker presents some information, and the "acceptance" in which the conversational partner then signals to the speaker some evidence of understanding or lack thereof. Together, a presentation and acceptance constitute a "contribution," the basic building block of conversation, with successful

conversation being a collaborative process in which all participants work together to create mutual understanding and meaning, contribution by contribution.⁸

THE MODEL

In addition to providing a framework for a close analysis of the informed consent conversation, Clark and Schaefer's model also helps identify when the successful exchange of information has occurred. One important component of their model is what they call a hierarchy of evidence of understanding. This hierarchy characterizes various types of acceptances that can occur during a conversation and sorts them based on how strongly they evidence understanding. Starting with paying attention, their original hierarchy characterized five types of evidence, graded from weakest to strongest, presented in table 2. Their hierarchy serves as an important component of our model, because, with modification, it can be used as a guide to help assess the contributions made during the informed consent conversation.

APPLYING THE HIERARCHY TO INFORMED CONSENT IN DEMENTIA

We made several modifications of the original hierarchy to apply it to the informed consent conversation in which one of the participants has dementia. To avoid confusion, as understanding is also one of the standards for decision-making capacity, we call our version the "hierarchy of evidence of decision-making capacity." Many of our modifications involve reconsidering the weight given to various types of evidence of decision-making capacity from someone with dementia.

Table 1. Standards for Evaluating Capacity

The four abilities are as follows:

1. Ability to communicate a choice
 2. Ability to understand information relating to disease and treatment options
 3. Ability to appreciate a situation and its consequences
 4. Ability to manipulate information rationally or reason
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Adapted from P.S. Appelbaum and T. Grisso, "Assessing Patients' Capacities to Consent to Treatment," *New England Journal of Medicine* 319, no. 25 (1988): 1635-8.

Revising the hierarchy with persons with dementia in mind forces us to more closely examine some of our assumptions concerning the understanding of our conversational partner. For example, cognitively impaired persons may retain the ability to respond appropriately by *backchanneling* (which are verbal or nonverbal reactions to a speaker that signal continued attention);⁹ but, because persons can backchannel without truly understanding the content of a conversation, it is weaker evidence of understanding. Although backchanneling, such as a nod or an "uh-huh" in the course of a conversation, may represent true understanding in a cognitively intact person, the action itself conveys scant evidence of this understanding. Thus, in our hierarchy of evidence of decision-making capacity, we have given more weight to the ability to provide an appropriate next contribution; that is, to make a relevant addition to the body of the conversation beyond simply indicating attentiveness or backchanneling. Assigning less weight to backchanneling will also help minimize errors in interpretation that can come about because of cultural differences in the meanings conveyed by these actions.¹⁰

Stipulating that persons with dementia need to prove to us that they comprehend by offering evidence of decision-making capacity in their next relevant contribution, we can structure the hierarchy to reflect the varying degrees of evidence in different types of statements. There is a wide range of variability in the strength of evidence that can be engendered in the next relevant contribution, and this is where much of the challenge of evaluating conversation exists. For example, a low level of next relevant contribution would be a simple "yes" or "no" answer to a question. Adding an additional supportive statement to the "yes" or "no" answer (for example, "Yes, I agree with that,") further supports its authenticity and should be considered as better evidence than a simple yes/no. With these issues in mind, we modified the hierarchy (see table 3). The higher levels of evidence will be further discussed when we operationalize the standards in the next section.

This model provides a framework that encourages us to make more conscious and systematic judgments about what types of statements constitute evidence of decision-making capacity. For a subject to be judged as possessing decision-making capacity, he or she should be able to demonstrate during the

course of a conversation that he or she possesses the four commonly accepted abilities related to decision-making capacity, as described by Appelbaum and Grisso. By using our hierarchy of evidence as a guide to examine the acceptances of the subject in an informed consent conversation, we can begin to systematically review the subjects' participation in the conversation as part of an evaluation of their decision-making capacity. It is reasonable to hold a cognitively impaired subject in an informed consent conversation to a standard of more explicit evidence of decision-making capacity. However, previous studies report that even cognitively intact persons

Table 2. Clark and Schaefer's Hierarchy of Evidence of Understanding

1. *Continued attention.* At a minimum, the speakers must pay attention to one another for successful communication to occur.
 2. *Initiation of the next relevant contribution.* This is an appropriate response to the previous presentation that does not add new information.
 3. *Acknowledgment or backchanneling.* This consists of verbal or nonverbal reactions to a speaker such as a nod of the head or an "uh-huh" that are meant to signal continued attention.
 4. *Demonstration.* Usually in the form of paraphrasing the previous presentation.
 5. *Display.* Verbatim repetition is considered the highest level of evidence of understanding in Clark and Schaeffer's hierarchy.
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Table 3. Modified Hierarchy of Evidence of Understanding = Hierarchy for Evidence of Decision-Making Capacity

1. Continued attention
 2. Acknowledgment (backchanneling, for example, nodding, saying "yeah" or "uh-huh")
 3. Next relevant contribution:
 - a. Single word answers (yes, no, maybe, etc.)
 - b. Single word answer plus confirmatory language (yes, I think so)
 - c. Paraphrases
 - d. New idea (that signals understanding of previous contribution)
-

have difficulty understanding information in an informed consent form, suggesting that requiring better evidence of mastery of the information presented is not only a good idea for people with dementia but perhaps for cognitively intact people as well.¹¹ Requiring more explicit or higher level evidence from everyone who gives informed consent would make it more difficult to make erroneous assumptions about an individual's decision-making capacity.

OPERATIONALIZING THE STANDARDS

To use our model to assess a person's ability to understand, appreciate, reason, and make a choice, we need to operationalize these standards by characterizing how different types of acceptances evidence mastery of one or more of the four abilities related to decision-making capacity. In the next sections we will review the standards and suggest ways to operationalize them. Examples of actual conversations are provided from a cohort of subjects from the Dementia Research: Informed Proxy and Advance Consent (DRIPAC) Project, a National Institutes of Health-funded, multi-disciplinary study of consent for dementia research.¹² In this study, participants with mild to moderate dementia were videotaped having informed consent conversations after being presented with hypothetical research vignettes (see table 4). In these semi-structured interviews, participants were asked if they would agree to participate in a particular hypothetical research trial, and why, and were asked to identify a proxy decision maker in the event they were no longer able to decide for themselves. The interviews were transcribed and broken down into contributions for our analysis.

STANDARD 1: COMMUNICATING A CHOICE

This standard is meant to reflect whether the patient can make a choice between two or more options, and not the quality of that choice, and is "accepted universally as a sign of competence to consent to treatment, so much so that legal standards often neglect to mention it explicitly."¹³ In a groundbreaking longitudinal study of the linguistic characteristics of a woman with dementia, Heidi Hamilton found that the number of instances in a conversation in which the subject did not respond at all to a question increased as the subject's disease progressed,

suggesting that merely communicating a choice in response to a question may become difficult for patients with more advanced dementia.¹⁴

Communicating a choice usually involves simply answering "yes" or "no" to the question of whether or not one wants to participate in research. However, there are inherent problems in accepting the usual "yes" or "no" answer from a person with dementia. Hamilton found that isolated "yes" or "no" answers to yes-no questions did not always indicate comprehension of the question.¹⁵ This holds obvious significance for the informed consent conversation with a person with dementia, and suggests that isolated yes-no answers to questions should be probed for further evidence that the participant did comprehend the question and is intentionally communicating a choice. This can be accomplished by either asking the participants to elaborate on their yes-no answer or restating the question so that an initial "yes" response should now be a "no" answer, and vice versa, to reflect consistency.

STANDARD 2: UNDERSTANDING

A widely accepted method of determining whether subjects understand information relating to their disorder and participation in research is to present the relevant information and ask them to paraphrase it.¹⁶ However, it is usually not feasible for interviewers to ask participants to paraphrase each piece of information presented to them in the course of a conversation. Repeatedly asking participants to paraphrase information may change the interaction from a relatively natural conversation to a testing situation, which could increase the participants' anxiety and possibly make them appear less competent.¹⁷ However, upon reviewing videotaped conversations from the DRIPAC study, we found that

Table 4. Five Hypothetical Research Vignettes

1. Blood drawing for research
 2. Blood drawing for genetic test
 3. Experimental medicine for Alzheimer's disease
 4. Lumbar puncture to be used in development of diagnostic test
 5. Brain surgery and "special cells" implanted in brain as experimental treatment for dementia
-

even without prompting, participants did sometimes paraphrase information given to them by the interviewer, as if to check their own understanding, as in the example below.

I: I understand that, but do you still feel comfortable having your daughter decide for you?

P: **To make the decision**

I: Right.

P: **Whether it should be done or not?**

I: Right.

P: **Over me. Uh, uh, uh, uh, uh, if I can't make the decision, then she can make this decision?**

I: Exactly.

P: **That's right. uh, huh. Yeah, I feel comfortable with her make the decision.**

By listening for paraphrases, a higher level of evidence on the hierarchy that are used in the course of the informed consent conversation, we can better assess for understanding.

Another useful type of evidence of understanding that has been empirically studied is the use of *anaphora*. Anaphora are words that refer back to prior words in the conversation or text.¹⁸ Examples of anaphora used by the participant are shown in the following contributions from the DRIPAC interviews concerning picking a proxy decision maker.

I: All right now, if, for some reason, Eileen, you are unable to make the decision about this research yourself, would you feel comfortable having **Joyce** make a decision about this research for you?

P: It'd depend on what's involved whether I would or not.

I: If you were unable to decide for yourself (and um)

P: Well I guess **she'd** have to then.

I: Would you feel comfortable having her —

P: Yes.

I: Tell me a little bit about why you would.

P: Well, **she's** done everything else the last couple of years I've been sick. I may as well trust **her** with that too.

In this example, we can see that the anaphora **she** in the second and fourth contributions and the anaphora **her** in the fourth contribution derive their meaning by referring back to **Joyce** in the first contribution. These types of anaphora are termed *reference*. Of course, in the above example, the interviewer should check to make sure that the anaphora is being used correctly. Ellis and colleagues have reported that speakers use different patterns of anaphora in conversation and that proper use of anaphora signals attention to deeper meanings in a conversation.¹⁹ Indeed, Ripich and Terrell found that people with dementia tend to use fewer anaphora, which may contribute to their decreased coherence.²⁰

An example of another type of anaphora, substitution, the use of one word to take the place of another, is found in the following conversation from the DRIPAC study.

I: You're close, you're close with **him**?

P: **My son**? Oh yeah.

Here the substitution of **my son** for **him** is greater evidence that the participant understands the interviewer's question than if the participant had simply answered "yes" in response to the question. A method known as *indirect repair* can be used to help persons with dementia express themselves while gathering more evidence of understanding or lack thereof. When a participant with dementia uses confusing language, an interviewer

or clinician can use indirect repair to attempt to clarify what the participant is trying to say. Indirect repair calls for interviewers to restate their understanding of the confusing language to allow the participant to confirm or deny the correctness of the listener's understanding.²¹ A participant's response to the interviewer's indirect repair can also demonstrate the extent of his or her understanding. An example of indirect repair follows, in a conversation related to a brain surgery research scenario (indirect repair is in bold-face type).

- P: When I was young and all that, I would go through and help them out.
I: **Really? You, if you were younger, you would let them, uh, drill a hole in your brain, and**
P: (interrupts) Absolutely, Yeah, I probably would, yeah.
I: Uh, huh.
P: Too late in the game now.

Of course, good judgment is required to assess whether an interviewer's indirect repair statement actually conforms to what the participant wanted to express. In the example above, the participant's agreement and further elaboration to the interviewer's repair is evidence that her age is a reason for not agreeing to be involved in the research. Elaborating on a response to repair is stronger evidence of understanding than validating the interviewer's statement with "yes" or "no."

STANDARD 3: APPRECIATION

The third ability necessary to decision-making capacity is the ability to appreciate a situation and its consequences. This ability is related to understanding, but requires further insight into the implications that information about a disease, treatment, or research protocol has for one's own situation.²² Dementia is a somewhat unique condition in that the disease itself affects the sufferer's ability to appreciate that she or he has a problem. Subjects with dementia may have trouble distinguishing treatment procedures or research relating to their dementia from those relating to other diseases from which they also suffer, especially if the procedures are similar (for example, a blood draw). These participants might understand the procedure of blood drawing, but not appreciate the context in which this information is relevant to them: for example, unlike the blood that was drawn from them earlier in the day during their medical appointment or in their last visit to their physician, this blood will be used for research and not for their medical care. Contributions in which the participant makes reference to his or her own disease or treatment suggest *appreciation*, while contributions in which the patient denies disease or indicates confusion about which disease is being discussed would evidence lack of appreciation.

Aside from demonstrating knowledge of one's disease, how does one evidence appreciation during a conversation? For evidence of appreciation, we turn to the highest level of evidence from our hierarchy, a new idea compatible with the previous presentations, and not merely paraphrasing. *Acceptances* that successfully demonstrate this property are often strong evidence of appreciation. These types of presentations stand out, so much so that when one hears them in the course of an informed consent conversation, it is like a light bulb switching on signaling that the participant "got it." Given the dramatic nature of this evidence of appreciation, we named them *Aha contributions* (an example follows in which the *Aha* contribution is in bold-face type).

- I: As part of a research project, do you think you would give permission for a tube of blood to be drawn from you?
P: Mmm hmm.
I: Can you please tell me a little bit about why you would give permission?
P: **Because if it would help somebody else with their memory I knew that would be a, that would be really wonderful because right now, I need help with MY memory and I think if I could help somebody else with their memory, why, that would be good.**

These *Aha* presentations occur as a next relevant contribution, and are statements in which participants verbalize appreciation of the consequences of their decision, usually by explaining how the information applies to them. While these statements may include information from the interviewer's presentation, they are not merely a paraphrasing of the information presented by the interviewer, but involve new ideas. For example, the example above demonstrates a global appreciation of the situation; the subject appreciates that she is agreeing to have blood drawn as part of a research project that will not directly benefit her, but that may benefit others in the future.

STANDARD 4: REASONING

The fourth ability for decision-making capacity is the ability to reason or to manipulate information rationally. Reasoning is defined in this context as the ability to "engage in logical processes when using the information that they understand and appreciate in arriving at a decision."²³ That the reason be rational has been suggested as a criterion,²⁴ but this may be too nebulous a concept. Indeed Freedman called this notion "overly paternalistic" as it distinguishes between acceptable (rational) and unacceptable reasons for a decision. Instead, he suggested the term "recognizable reason," which can be identified as containing true premises and a conclusion related to those premises.²⁵ In our model, we suggest that the participant supply a "recognizable reason" for a decision, and that the reason appear rational to the evaluator. By breaking down a conversation into contributions, these premises and conclusions can be more easily located and judgments may be made about their validity.

Assessing ability to reason can also be enhanced by applying *frame analysis*, which involves "how people align themselves with what is happening environmentally." According to Goffman, conversations occur within "frames of meaning" that are socially defined.²⁶ When a speaker makes an utterance, that utterance carries with it a frame or context that is normally absorbed into the conversation. When competent speakers change the subject or context, they will usually provide transformational cues to signal a break (for example, "That reminds me. . .") and/or temporal, geographic, or physiological cues to define the new frame (for example, a *temporal cue*: "Back in the seventies. . .").

Persons with dementia may not provide the appropriate cues when they shift frames. Bohling speculated that this may occur because of problems with short-term memory and time and space orientation, as well as difficulty in appreciating what one's conversational partner needs to understand and follow the conversation.²⁷ A speaker's attention to frame and his or her use of appropriate cues when shifting can give important clues to a person's reasoning ability. Below is an example from the DRIPAC interviews of a participant who shifts frames without immediately providing transformational cues or brackets to the new frame (the patient's presentation introducing the new frame is in bold-face type):

I: Would you give permission for someone to draw a tube of blood from you for a research project?

P: I would.

I: You would. OK, can you tell me a little bit about why you would do that?

P: **Well, first of all, I never got hurt in one.**

I: Uh, huh

P: I always the same [?], my family never lost anything or got hurt. . . .

I: Hurt by what?

P: In a fire. Ah, um, er, what do you call that? What did you call that?

I: I said, would you be willing for someone to take a tube of blood from you to come up with a test for Alzheimer's disease?

Here, the participant shifts frames from the blood-drawing situation to a house fire without providing adequate cues. In this example, an uncued frame shift signals lack of ability to evidence sequential reasoning.

DISCUSSION

We have presented a theoretical basis for evaluating decision-making capacity in people with dementia that utilizes discourse analysis, linguistic theory, and established ethical standards to examine what we see as the primary data for this assessment — the words and actions of those involved in the informed consent interaction. This approach acknowledges the uniqueness of the assessment of decision-making capacity as a highly subjective evaluation of an internal state of mastery of explicit standards, and provides a compass for navigating the sometimes confusing terrain of the informed consent conversation with a person with dementia. The field of discourse analysis is extremely useful for illuminating this process on several levels.

An important insight gained from applying discourse analysis to these informed consent conversations is the need for both participants to collaborate in creating the conversation. Thoughtful actions by the interviewer, such as successfully repairing confusing language, can result in the participant being able to evidence mastery of a standard. On the other hand, a participant's repeated inability to repair confusing language could make us more confident in finding him or her to be currently incapable of understanding a particular concept. Sabat argues that repair and probing need to be applied to discourse with persons with dementia by the unimpaired conversational partner, to have a successful conversation.²⁸ As such, any method for effectively and consistently assessing decision-making capacity of a participant with dementia must necessarily involve instruction for the interviewer in techniques for improving communication with persons with dementia, as well as an assessment of the interviewer's ability to facilitate the communication.

From a research perspective, our theory provides a structure for approaching the informed consent conversation as data. This structure involves breaking down conversations into contributions, creating manageable pieces of information for analysis. It also provides the framework for evaluating these contributions in terms of the evidence they provide of the ethical standards for evaluating decision-making capacity. This theory could be translated into an instrument designed for an extremely close analysis of the informed consent conversation. This instru-

ment would rate every contribution as to the evidence it provides of mastery of each of the four standards. An essential element of this instrument would be an evaluation of the interviewer and his or her ability to inform and respond to the communicative needs of the participant. We have presented our exciting initial results with such an instrument, one that we developed and tested on the DRIPAC data mentioned above.²⁹ Experimental validation of these concepts by comparing scores on the instrument with the opinion of experts and neuro-psych testing will yield a better understanding of the informed consent process and the ways we judge decision-making capacity.

From a more practical perspective, our approach could be applied to informed consent conversations in real time as a way of adding rigor to the evaluation of decision-making capacity. Interviewers could be taught the basic principles of discourse analysis to better appreciate what happens in a conversation and to more consciously consider the actual evidence that the participant is supplying. The ideas discussed under operationalizing the standards (see table 5), including linguistic concepts such as indirect repair and frame analysis, can be taught and applied to the discourse of persons with dementia as aids to help evaluate their mastery of the standards related to decision-making capacity. Instead of the usual gestalt impression of decision-making capacity, evaluators can point to specific instances in the informed consent conversation in which evidence for mastery or lack thereof of the four standards was given by the participant.

Table 5. Aids for Evaluating the Four Abilities in the Course of a Conversation

Choice	Continued attention: eye contact Acknowledgment: back channeling
Understanding	Paraphrasing Response to probing Anaphora Need for repair Response to repair
Appreciation	Reference to one's disease <i>Aha</i> contribution
Reasoning	Frame analysis Recognizable reason

There are broader applications for discourse analysis in the medical and research setting. This approach could be useful for evaluating decision-making capacity for treatment decisions and could be applied more generally to the research and clinical settings for patients without cognitive impairment. Aspects of discourse analysis could be used for improving and evaluating other clinical encounters that involve conversations such as obtaining a medical history on a patient, as well as discussing difficult topics such as bad news, goals of care, and advance directives. By being more aware of the collaborative nature of conversation and the importance of eliciting evidence of understanding and lack thereof from their patients, clinicians could more effectively communicate with their patients. Clinicians would also become more aware of the importance of signaling their own understanding to their patients (conversational partners) and the importance of repairing misunderstandings on either end. In future articles, we will present the instrument we developed based on the theoretical constructs presented above, along with reliability and validation studies.

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NOTES

1. E.J. Emanuel, D. Wendler, and D. Grady, "What Makes Clinical Research Ethical?" *Journal of the American Medical Association* 283 (2000): 2701-11.

2. National Bioethics Advisory Committee, *Research Involving Persons with Mental Disorders that May Affect Decisionmaking Capacity: Volume One: Report and Recommendations of the National Bioethics Advisory Commission*, December 1998, at <http://www.georgetown.edu/research/nrcbl/nbac/capacity/TOC.htm>.

3. B.E. Murdoch et al., "Language Disorders in Dementia of the Alzheimer Type," *Brain and Language* 31 (1987): 122-37; D.N. Ripich and B.Y. Terrell, "Patterns of Discourse Cohesion and Coherence in Alzheimer's Disease," *Journal of Speech and Hearing Disorders* 53 (1988): 8-15; M. Grossman, "Lexical Comprehension Impairment in Alzheimer's Disease," in *Research and Practice in Alzheimer's Disease*, vol. 2, ed. B. Vellas and L.J. Fitten (New York: Springer, 1999): 152-6; J.B. Orange and R.E. Bouchard, "Alzheimer's Disease and Other Dementias: Implications for Physician Communication," *Clinics in Geriatric Medicine* 16 (2000): 153-65.

4. P.S. Appelbaum and T. Grisso, "Assessing Patients' Capacities to Consent to Treatment," *New England Journal of Medicine* 319, no.25 (1988): 1635-8; T. Grisso, P.S. Appelbaum, and C. Hill-Fotouhi, "The MacCAT-T: A Clinical Tool to Assess Patients' Capacities to Make Treatment Decisions," *Psychiatric Services* 48 (1997): 1415-9; T. Grisso and P.S. Appelbaum, *Assessing Competence to Consent to Treatment: A Guide for Physicians and Other Health Professionals* (New York: Oxford University Press, 1998); T. Grisso and P.S. Appelbaum, *MacArthur Competence Assessment Tool for Treatment (MacCAT-T)* (Sarasota, Fla.: Professional Resource Press, 1998).

5. K.S. Earnst, D.C. Marson, and L.E. Harrell, "Cognitive Models of Physicians' Legal Standard and Personal Judgments of Competency in Patients with Alzheimer's Disease," *Journal of the American Geriatrics Society* 48 (2000): 919-27; D.C. Marson et al., "Neuropsychologic Predictors of Competency in Alzheimer's Disease Using a Rational Reasons Legal Standard," *Archives of Neurology* 52 (1995): 955-9; S.Y.H. Kim et al., "Assessing the Competence of Persons with Alzheimer's Disease in Providing Informed Consent for Participation in Research," *American Journal of Psychiatry* 158 (2001): 712-7.

6. D.C. Marson et al., "Error Behaviors Associated with Loss of Competency in Alzheimer's Disease," *Neurology* 52 (1999): 1983-92.

7. D. Schiffrin, *Discourse Markers* (Cambridge, U.K.: Cambridge University Press, 1987).

8. H. Clark and E.F. Schaefer, "Contributing to Discourse," *Cognitive Science* 13 (1989): 259-94; H. Clark,

Using Language (Cambridge, U.K.: Cambridge University Press, 1996).

9. V. Yngve, "On Getting a Word in Edgewise," *Chicago Linguistic Society* 6 (1970): 567-78.
10. G. Galanti, *Caring for Patients from Different Cultures: Case Studies from American Hospitals* (Philadelphia: University of Pennsylvania Press, 1997); S.L. Brodsky, "Shake Your Head 'Yes': A Cross-Cultural Note on Nonverbal Communication," *Clinical Psychologist* 40, no. 1 (1987): 15.
11. D.J. Byrne, A. Napier, and A. Cuschieri, "How Informed Is Signed Consent?" *British Medical Journal Clinical Research Edition* 296 (1988): 839-40.
12. G.A. Sachs et al., "Conducting Empirical Research on Informed Consent: Challenges and Questions," *IRB: Ethics & Human Research* 25 (2003): S4-S10.
13. D.C. Marson et al., "Assessing the Competency of Patients with Alzheimer's Disease Under Different Legal Standards," *Archives of Neurology* 52 (1995): 949-54.
14. H.E. Hamilton, *Conversations with an Alzheimer's Patient: An Interactional Sociolinguistic Study* (Cambridge, U.K.: Cambridge University Press, 1994).
15. Ibid.
16. See note 4 above.
17. See note 14 above.
18. D. Crystal, *Dictionary of Linguistics and Phonetics* (Malden, Mass.: Blackwell, 1997), 19.
19. D.G. Ellis, R.L. Duran, and L. Kelly, "Discourse Strategies of Competent Communicators: Selected Cohesive and Linguistic Devices," *Research on Language and Social Interaction* 27, no. 2 (1994): 145.
20. D.N. Ripich and B.Y. Terrell, "Patterns of Discourse Cohesion and Coherence in Alzheimer's Disease," *Journal of Speech and Hearing Disorders* 53 (1988): 8-15.
21. E.A. Schegloff, G. Jefferson, and H. Sacks, "The Preference for Self-Correction in the Organization of Repair in Conversation," *Language* 53 (1977): 361-82.
22. See note 4 above.
23. Ibid.
24. D.C. Marson et al., "Consistency of Physicians' Legal Standard and Personal Judgments of Competency in Patients with Alzheimer's Disease," *Journal of the American Geriatrics Society* 48 (2000): 911-8.
25. B. Freedman, "Competence, Marginal and Otherwise: Concepts and Ethics," *International Journal of Law and Psychiatry* 4 (1981): 53-72.
26. E. Goffman, *Frame Analysis: An Essay on the Organization of Experience* (New York: Harper and Row, 1974), 21.
27. H.R. Bohling, "Communication with Alzheimer's Patients: An Analysis of Caregiver Listening Patterns," *International Journal of Aging and Human Development* 33, no. 4 (1991): 249-67.
28. S.R. Sabat, "Facilitating Conversation with an Alzheimer's Disease Sufferer Through the Use of Indirect Repair," in *Language and Communication in Old Age: Multidisciplinary Perspectives*, ed. H.E. Hamilton (New York and London: Garland Publishing, 1999), 115-31.
29. D.J. Brauner et al., "A Linguistic-Based Instrument for Assessing Decision-Making Capacity in Persons with Dementia: Correlations with Expert Opinion," *Gerontologist* 41 (2001): 380; S.E. Merel et al., "Linguistic-Based Determinations of Decision-Making Capacity in Persons with Dementia," *Journal of the American Geriatric Society* 49 (2001): S138.