Implicit and Unnoticed Conversational Competencies and the Clinical Assessment of a Person in a Disordered State of Consciousness

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Research Purpose

Our objective is to uncover implicit interactional and linguistic practices that healthcare practitioners and patients use during the administration of clinical assessments.

Background

- The **Coma Recovery Scale – Revised (CRS-R)** measures neurobehavioral responses of persons in disordered states of consciousness (DOC).
- The CRS-R stimuli include standardized command prompts and questions that test motor function, verbal ability, communication, and arousal. Administering these stimuli can be understood as a script for the practitioner to follow.
- Practitioners embed this formal script in less formal language that initiates and orients the conversational interaction.
- Practitioners make interactional and linguistic assumptions when using such assessments. These 'unnoticed' assumptions may provide evidence for neurobehavioral competencies that are not specifically captured by assessment scoring criteria.

Study Design

- Our multidisciplinary analysis draws from, and our findings integrate, sociological, linguistic, and conversation analytic approaches. Here we highlight linguistic aspects of the practitioner and patient interactions.
- In particular, we examine:
  - Gaze and direction of attention as they are embedded in the unspoken norms of conversation
  - the identification of language forms and their usage in speech acts

Study Design

Study Data: A 12-minute video-recorded interaction with a patient in DOC (KN) and a speech language pathologist (a training video with the purpose of demonstrating the CRS-R).

Approach:

- We transcribed and interpreted the video using the conventions of **Conversation Analysis** (Figure 1).
- Within each turn of talk, we recorded the sounds, gestures, pauses, and movements of the participants
- The patient (KN) is non-verbal and communicates primarily through gaze. We also recorded the direction of KN's gaze during each turn of talk.
- We categorized sections of the transcription into discrete patterns of interaction. Each pattern has characteristic forms interaction and focus for each participant (Figure 2).
- Our analysis is informed by **Speech Act Theory**, which highlights the relationship between the linguistic form of an utterance and its pragmatic usage.

07:26	CL	okay?	
07:27	CL	look at yes	
07:28	CL	((CL pauses 2 sec for response))	
07:28	KN	((Eyes shift down slightly to yes card))	
07:29	CL	and now look at no	
07:30	CL	((CL pauses 1 second for response))	
07:30	KN	((KN very clearly lifts head to gaze at no card))	
07:31	CL	okay(.)	
07:32	KN	((KN's gaze returns to "home position" between the two cards))	
07:32	CL	are you ready?	
07:34	CL	are the lights on:: in this room?	
07:37	CL	((CL pauses 4 sec for response))	
07:37	KN	((KN's eyes shift upwards, he blinks, they shift further up to no card, then back to home position))	
07:41	CL	what's your answer again?	
07:42	CL	show me one more time	
07:43	CL	((CL pauses 2 sec for response))	
07:43	KN	((KN's eyes shift downward toward yes card, then back to home position))	
07:45	CL	okay look at me	
07:47	CL	is your name mark?	
07:48	CL	((CL pauses 3 sec for response))	
07:48	KN	((KN's eyes shift up to no and then back down to home position))	

Figure 1: Transcription Sample
CL (Clinician) and KN (Patient) use positioned cards to demonstrate the Communication Section

Principal Findings

Demonstration of Attention

There were three observed patterns of interaction:

- The clinician (CL) describes the procedure to the camera (CAM)
- The clinician describes the procedure for the camera while addressing the patient (KN)
- The clinician and patient demonstrate the assessment

In all patterns (including those outside of the formal assessment) **KN's gaze indicates an appropriate focus on the relevant participant.**

Pattern	Clinician (CL)	Patient (KN)	Camera (CAM)
1 - Description (Audience Focus)	CAM	Neutral	(CL + KN)
2 - Description (Patient Focus)	(CAM **OR** KN)	(CL **OR** Neutral)	(CL + KN)
3 - Assessment	KN	CL	(CL **OR** KN)

Figure 2: Patterns of Participant Interaction and Primary Focus

In the CRS-R Communication Section, the patient answers questions by looking at horizontally positioned cards labelled "YES" and "NO" (Figure 1).

KN actively signals the completion of a response by gazing at a medial position between the cards. This differs from the "Neutral" position in which he is not actively engaged.

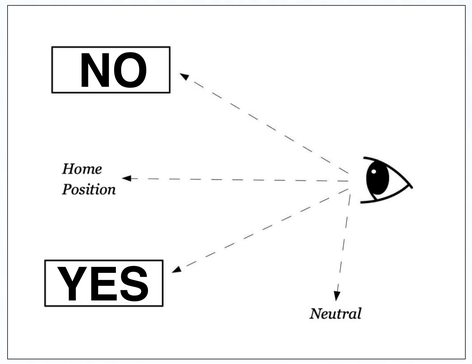

Figure 3: Gaze and Turn Recipiency
KN (patient) actively communicates the end of a turn by returning gaze to the Home Position

Principal Findings

Comprehension of Discourse Norms

The Guidelines for the CRS-R prescribe a script for conducting the assessment. Explicit prompts are given in direct and repetitive language. The clinician's performance of this script differs in ways that more closely follow the regular norms of conversation:

- Prompts are embedded within turns of talk that guide and prepare the patient and acknowledge responses (**Turn Recipiency**).
- **The clinician uses a variety of direct and indirect language forms** to perform the prompt.

CRS-R Guidelines		⇒ Transcript		
1) 'Show me how to wave' **(demonstrate gesture).**	Imperative	00:13	I want you to use this right hand and I want you to show me how to wave	Statement
2) 'I'm going to wave again. Do not move at all. Just hold still.' **(demonstrate gesture)**	Imperative	00:19	How do you wave?	Question
3) 'Show me how to wave' **(demonstrate gesture).**	Imperative	00:28	Show me that	Imperative
4) 'I'm going to wave again. Do not move at all. Just hold still.' **(demonstrate gesture).**	Imperative			

Figure 4: Example of Multiple Linguistic Strategies Employed by Clinician in Conducting Assessment

Figure (5) summarizes the diversity of language forms that CL uses for different functions in conducting the assessment.

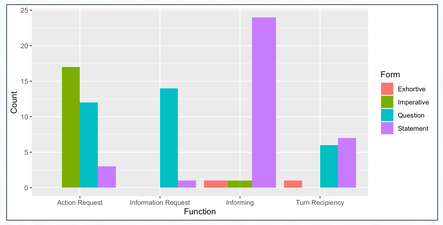

Figure 5: Language Form and Primary Function of Clinician Turns of Talk during Assessment (Pattern 3)

KN's successful performances demonstrate his **ability to comprehend varied and indirect language and interpret its purpose**.

KN does not always respond correctly, but nevertheless demonstrates implicit and unacknowledged conversational competencies during those turns of talk that initiate and frame the scripted prompts.

Conclusions

We observe conversational competencies that are not directly captured by the CRS-R scoring criteria, but which may suggest a higher level of consciousness than would be detected by the CRS-R sensory stimuli alone.

Relevance to Practice

- Conversational competence is rarely, if ever, evaluated in determining recovery of consciousness, where the focus is usually on vocalization.
- Addressing this may help improve accuracy of diagnosis, treatment, and outcomes for patients in DOC by understanding and enriching the clinical assessment process

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