



Pragmatics in the absence of verbal language: Descriptions of a severe aphasic and a language-deprived adult

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Abstract—Two cases with vastly different etiologies are presented to illustrate pragmatic competence in the absence of verbal language. The first is a man with severe Broca's aphasia who lost the ability to use any propositional language after a massive left hemisphere stroke. The second is a congenitally-deaf woman with no exposure to language until well into adulthood. Despite their lack of verbal skills, both cases demonstrate a full command of pragmatic abilities and function as competent social actors. This finding reinforces the view of pragmatics as a vital part of social interaction.

Introduction

Ask any linguist, psycholinguist, speech pathologist, neurolinguist, neurologist, or philosopher what pragmatics is and you may get a cautious answer. Most would venture that pragmatics has something to do with the social aspects of language, i.e., the *way* in which things are communicated rather than *what* is communicated. Yet the specifics of how the '*way*' and the '*what*' relate to each other and how they interact to achieve effective communication are much more difficult to pin down. Most people are just not sure what role pragmatics plays in communication or to what extent it relates to the other components of language.

Too frequently, 'language' is considered to consist only of syntax, semantics, morphology and phonology. Yet, we know that the inappropriate use of prosody, vocal intensity, eye contact, turn-taking, maintenance to the topic, or physical proximity to the listener can cause an utterance to be misinterpreted or cause the listener to "tune out". These errors result in poor communication just as surely as grammatical, lexical, or phonological errors cause misinterpretations. It has been known for some time that certain patients (mostly with right hemisphere disease) are shunned for their odd pragmatic behavior, even though their grammar, lexical selection, and pronunciation may be flawless. At the same time, aphasic patients may demonstrate perfect pragmatic skills and not be able to utter a word.

Even with this knowledge, pragmatics continues to be low on the totem pole of language, and its role in communication is often overlooked. In this paper, we offer some thoughts on the importance of pragmatics in communication particularly in light of its remarkable perseverance in the absence of verbal language. In our Aphasia Research Lab, we have been struck by the similarities between two patients of vastly different etiologies. One is a severe Broca's aphasic with a massive left hemisphere lesion. The other is a language-deprived adult, whose profound deafness was misdiagnosed as cognitive impairment, so that language exposure was delayed until well past the developmentally

critical language learning period. Both of these individuals have severe limitations in speaking, but seem to be competent, engaged social actors. We have attempted to document their preserved pragmatic abilities and will discuss them in the context of inter-communication.

Some history and perspective

The notion of pragmatics first emerged in philosophy in the effort to relate meaning to thought and communication and to understand how the units of meaning were used in real situations. The word itself is attributed to Morris (1938) who divided 'semiotics' (the 'science of signs') into three areas: (1) semantics—the content of signs (what they refer to), (2) syntax—how signs relate to one another (how they can be combined into larger units), and (3) pragmatics—how signs are deployed by one individual for uptake by another (how they are used and interpreted). Consideration of all three realms was considered necessary for a full grasp of meaning.

Another philosopher, Austin (1962), launched these ideas to a wider public with an influential lecture series at Harvard in 1955. He sought to help grammarians and philosophers find a common ground in talking about language. The only way to approach a sentence had been to treat it as a verifiable description of a state of affairs, that is, as a true or false statement of fact. Austin showed that more could be made of language by considering it as performing deeds: people use words and sentences to do things. By looking at what they are trying to do, the meaning of the language units they are using becomes clearer.

These ideas were further popularized and brought into linguistics by Searle (1969; 1971) and Grice (e.g., 1968; 1975). With their discussions of 'speech acts', linguists could now talk about the difference between sentences and utterances. Relevance, presupposition, implication, and so on, could be handled in systematic ways. (See Levinson (1983) for description of pragmatics within linguistics.) The revolution promised by Austin was well under way.

The tools provided by studying pragmatics have been well used in applied linguistics. Practitioners in speech pathology drew directly on Austin and Searle to develop instruments to help clinicians understand how an individual uses language, with the goal of remediating such deficits in language-disordered patients (Gallagher & Prutting, 1983; Prutting & Kirchner, 1987). In neurolinguistics, it became clear that pragmatics encompassed an area of language for which right-hemisphere involvement is critical (Joanette, Goulet, & Hannequin, 1990; Molloy, Brownell, & Gardner, 1990). Patients with unilateral right-hemisphere damage usually do well with the semantic and syntactic aspects of language, but show deficits in the context-sensitive, socially appropriate uses to which language is put in everyday situations. These applications and discoveries were made possible by defining pragmatics as a language function. Today, we have nurses and other health care providers being schooled in pragmatics as "right brain communication" (Boss, 1996) and cognitive scientists using theories of utterance interpretation to discern the influence of pragmatics on people's understanding of what is communicated by other speakers (Gibbs & Moise, 1997).

Though the pragmatics revolution may be firmly launched, there is still room for growth in applying it to our paradigm of language. In particular, much of the work has focused on deficits in pragmatics. This has been useful for defining these language functions and for establishing their validity. But surely there is a positive side to pragmatic abilities, a "glass half full" vantage point for considering their communicative functions.

The tendency to treat pragmatics as an extension or attachment to the traditional functions of linguistics has obscured its independent reality in human interactions, the important role it plays in what could be called "nonverbal social communication". Even without the benefits of semantics or syntax, a great deal of social interaction is still possible. Pragmatics could be a window onto these important competencies.

The Pragmatic Protocol (Prutting & Kirchner, 1983; 1987)

For this paper, we will use the Pragmatic Protocol to describe the pragmatic abilities of our two individuals. The protocol is well recognized in the rehabilitation community as a measure of pragmatic skills in both children and adults (Sohlberg & Mateer, 1989). It is based on a 15-minute unstructured conversational sample in which the clinician can rate patients on how well they use language. The relationship between the communicative partners must be positive or neutral, so that both expect to engage in cooperative discourse. The clinician judges performance on each of 30 pragmatic behaviors, broken down into two main aspects: verbal and nonverbal. Verbal aspects of pragmatics include speech acts, topic selection and maintenance, turn taking, lexical selection, stylistic variations and paralinguistic aspects. Nonverbal aspects include kinesics and proxemics.

After watching the interaction, the clinician evaluates each of the 30 behaviors as appropriate or inappropriate over the course of the episode. The criterion is whether the behavior facilitated or detracted from the communicative exchange. Behavior is only judged inappropriate if it could be said to penalize the individual or if it makes a difference in the interaction.

Case descriptions

Patient AK (severe Broca's aphasia)

Patient AK is a 63-year-old white male who was pre-morbidly right-handed and a native English-speaker. He had some college education and had retired after a 23-year career in the Navy as a Chief Petty Officer; he was in a second career as a corporate training manager. In 1991, he suffered an extensive left middle cerebral artery infarction (see Figure 1) which left him with a dense right hemiparesis, dysarthria, apraxia of speech, and severe Broca's aphasia. His productive speech consists almost entirely of the recurring utterance /tōnō tōnō/ (or slight variations thereof) which permeate every attempt at verbalization, including spontaneous speech, repetition, and naming. (See Appendix A for a sample transcription¹.) His comprehension is typical of Broca's aphasia, with good single word and simple sentence understanding, breaking down on complex grammatical constructions. These behaviors are quantified in his Western Aphasia Battery (WAB) scores which can be seen in Table 1.

¹ A video sample of this patient's conversational skills is contained in Telerounds Program #9, "Neuroanatomical Correlates of Production Deficits in Aphasia" (Dronkers, 1993), produced by the National Center for Neurogenic Communication Disorders at the University of Arizona, Tucson.

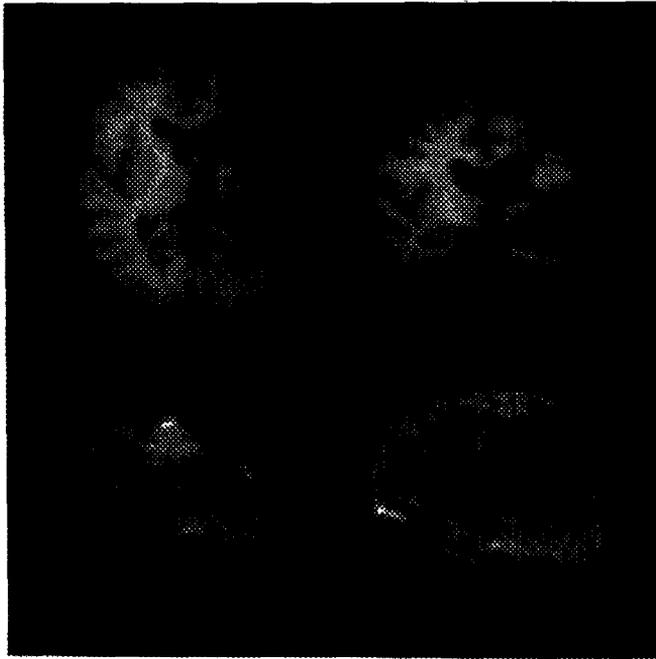


Figure 1. Three-dimensional reconstruction of Patient AK's lesion. This reconstruction depicts the extent of the middle cerebral artery infarction in this patient with a severe Broca's aphasia. The upper left image is a horizontal slice similar to those seen in CT images. The upper right image depicts a coronal section, and the lower left, a sagittal section through the left hemisphere. The lower right template shows a 3-D reconstruction of the brain with the lesion apparent on the lateral surface of the left hemisphere.

Date	Fluency	Aud. comp	Repetition	Naming	WABAQ
3-92	1	5.25	.2	4	17.7
9-92	1	6.1	.4	1.4	21.8
1-97	1	7.5	0	0	17.0
max	10	10	10	10	100

Table 1. Summary scores obtained on the Aphasia Quotient of the Western Aphasia Battery for Patient AK. The range for Broca's aphasia on the WAB is 0-4 for fluency, 4-10 for auditory comprehension, 0-7.9 for repetition, and 0-8 for naming.

AK's writing is limited to imitating samples and to writing his full name. His knowledge of numbers is better preserved, and he often uses numbers traced in the air as part of his communication (e.g., to indicate dates or specific numbers). AK's reading is severely impaired and limited to a few single words and to letters. He also has moderate-to-severe limb and buccofacial apraxia. His basic calculation and constructional praxis skills are

essentially intact. In spite of his limited productive speech, AK can carry a tune perfectly well, and can sing the words if he has a model to mimic. Table 2 summarizes some of the other neuropsychological test scores that reflect his language and cognitive abilities.

Peabody Picture Vocabulary Test

Date	Vocabulary age
6-97	4-1

Token Test

Date	Parts A-E (max correct=67)	Part F (max correct=96)
6-97	42	53

Wechsler Adult Intelligence Scale—Revised (Scaled Scores)

Date	Picture completion	Picture arrangement	Block design	Object assembly	Digit symbol	P IQ
6-97	5	7	8	5	3	86

Raven's Coloured Progressive Matrices

Date	Raw score (max correct=36)
3-92	22
9-92	30
1-97	32

Table 2. Sample scores obtained on other standard tests for Patient AK

AK lives with his wife and has children and grandchildren nearby. He enjoys following sports, playing computer games, and building elaborate Lego models. His social life includes visits from fellow sports enthusiasts and active involvement in several stroke support groups.

Patient AK's pragmatic abilities

Patient AK's performance on the Pragmatic Protocol is based on three ratings of a conversation with one of the authors, and is summarized in Table 3. In terms of any inappropriate pragmatic behaviors, the ratings indicate that AK only occasionally initiates directives, queries, and comments, and that the variety of his speech acts is also greatly reduced. He rarely selects or introduces the topic of discussion, and makes little effort to change it. Thus, the partner is left with the burden of carrying the conversation. These shortcomings are not surprising in light of his restricted productive speech. AK has very little verbal language with which to establish new topics and must rely on others to take that role. In other circumstances, AK can, of course, convey that he has wants or needs, but is not always successful in conveying the content of his message.

Communicative act	Appropriate	Inappropriate	N/A
<i>Verbal aspects</i>			
<i>Speech acts</i>			
1. Speech act pair analysis	Responds to directives, queries and requests; acknowledges comments	Only occasionally initiates directives, queries, comments	
2. Variety of speech acts	comments, asserts, disagrees	reduced variety	
<i>Topic</i>			
3. Selection		rarely selects topic	
4. Introduction		rarely introduces new topic	
5. Maintenance	contributes to maintenance		
6. Change		does not change topic	
<i>Turn taking</i>			
7. Initiation		partner carries burden	
8. Response	responds as a listener		
9. Repair/revision	asks for clarification		
10. Pause time	normal pauses		
11. Interruption/overlap	no interruptions or overlaps		
12. Feedback to speakers	nods, gestures appropriately		
13. Adjacency	waits turn		
14. Contingency	stays on topic		
15. Quantity/conciseness	non-verbal comments		
<i>Lexical selection</i>			
16. Specificity/accuracy			*
17. Cohesion			*
<i>Stylistic variations</i>			
18. The varying of communicative style	adjusts speech style with prosodics		
<i>Paralinguistic aspects</i>			
19. Intelligibility			*
20. Vocal intensity	normal intensity		
21. Vocal quality	normal vocal quality		
22. Prosody	normal prosody		
23. Fluency	recurring utterance is at normal rate and smoothness		
<i>Nonverbal aspects</i>			
<i>Kinesics and Proxemics</i>			
24. Physical proximity	normal distance		
25. Physical contacts	normal contacts		
26. Body posture	normal body posture		
27. Foot/leg hand/arm move.	normal movements		
28. Gestures	normal gestures		
29. Facial expression	normal facial expressions		
30. Eye gaze	normal eye gaze		

*not applicable/no opportunity to observe

Table 3. Summary Pragmatic Protocol ratings for Patient AK

Despite his difficulty in initiating new topics, AK does use gestures, facial expressions, and intonational variations on his recurring utterance to respond to directives, queries, and requests, and to acknowledge the comments of others. He also expresses his comments, assertions, and disagreements in this way. He contributes to maintaining the conversation by responding as a listener, and asking for clarification, again by using intonational variations, facial expression, and by nodding and gesturing. He does not interrupt and waits his turn appropriately.

AK expresses stylistic variations by adjusting his speech style with prosodics. He uses stress and intonation to modify his recurring utterance. Paralinguistic aspects include

normal intensity of the recurring utterance with normal vocal quality, prosody, rate, and smoothness.

All nonverbal aspects of AK's communicative efforts are perfectly normal. He maintains a natural distance between himself and his conversational partner, with normal physical contacts. His body posture, movements, gestures, facial expressions, and eye gaze are all also normal.

Thus, AK is an example of an individual with little to no verbal output except for the recurring utterance /tōnō tōnō/ which he varies with changes in stress and intonation. This strategy works well for him in terms of maintaining near-normal pragmatics. Though he has difficulty initiating and changing topic, he exhibits excellent pragmatic abilities by using appropriate turn taking, stylistic variations, and paralinguistic and nonverbal skills that keep him part of the conversation.

The case of "Chelsea" (language-deprived)

"Chelsea" has a very different language history, although she also maintains excellent pragmatic behavior in spite of impoverished verbal language. She is a 49-year-old white female who was born the second of seven children in a rural community in Northern California. She was born with a severe to profound sensori-neural hearing loss but was misdiagnosed as mentally retarded during her childhood. Chelsea's mother knew her to be deaf and ignored professional advice to institutionalize her, raising her at home among siblings. She learned to cook and do housework and helped her mother raise the younger children. She was denied admission to local schools and a school for the deaf. As a result, Chelsea did not acquire any language or receive any formal education until the age of 32 when she was referred to a neurologist and a speech pathologist by a social worker who realized her situation. At that time, she was fitted with bilateral hearing aids and began an intensive program of oral and signed language instruction, as well as education in math and other academic subjects. Chelsea currently lives at home with her parents, and works part-time in a veterinarian's office as an assistant. Her performance on several standardized tests can be found in Table 4².

Peabody Picture Vocabulary Test

Date	Vocabulary age	With or without signing
7-80	2-3	without
12-80	3-2	without
4-81	3-11	without
8-81	4-3	without
8-81	5-5	with
10-81	5-3	with
3-82	6-10	with
6-82	5-11	with
1-83	5-8	with

² Numerous neuropsychological and language tests have been administered to Chelsea over the years, and cannot all be represented here. The first author can be contacted for further details.

Token Test

Date	Parts A-E (max correct=67)	Part F (max correct=96)
8-82	65	53
10-86	60	55
10-87	52	43
7-89	55	57

Wechsler Adult Intelligence Scale (Scaled Scores)

Date	Picture completion	Picture arrangement	Block design	Object assembly	Digit symbol	P IQ
10-80	10	4	6	10	3	77
12-81*	6	4	8	16	4	84
10-86*	12	4	8	10	4	89
10-87*	12	2	7	7	5	84

* WAIS-R

Raven's Coloured Progressive Matrices

Date	Raw score (max correct=36)
12-81	24
1-83	24
10-86	29
10-87	28

Table 4. Sample scores obtained on standard tests for Chelsea

Chelsea's case addresses many interesting questions concerning the critical age for language acquisition, particularly whether it is possible to learn language after long periods of language deprivation in childhood. Her situation is analogous to those of linguistically "feral" children, such as Genie (Curtiss, 1977) or the Wild Boy of Aveyron (Itard, 1801), who did not acquire language because of lack of exposure. For Chelsea, the lack of exposure was due to severe hearing loss, but she was otherwise raised in a normal and loving family environment, contrary to previous cases. Lenneberg (1967) believed that children who did not learn language by the age of puberty would not be able to acquire it normally, while Krashen (1973) lowered this critical age to five years. The answer offered by Chelsea's case is the same one concluded by Curtiss for Genie; the critical age for language acquisition is different for the different components of language. Both Genie and Chelsea continue to develop their vocabulary, years after beginning to learn language as adults. Their knowledge of syntax, however, remains virtually absent. Chelsea's conversational style is to string words together, with no evidence of syntax or morphology. (See Appendix B for a sample transcription.)

Chelsea's pragmatic abilities

In the realm of pragmatics, Chelsea has developed quite normally. Her social skills are most appropriate, and she, like Patient AK, is very pleasant company. This is reflected in her performance on the Pragmatic Protocol (Table 5).

Communicative act	Appropriate	Inappropriate	N/A
<i>Verbal aspects</i>			
<i>Speech acts</i>			
1. Speech act pair analysis	Responds to directives, initiates queries and comments		
2. Variety of speech acts	appropriate use and diversity		
<i>Topic</i>			
3. Selection			*
4. Introduction	introduces topics		
5. Maintenance	tries to maintain topic		
6. Change	makes some change in topic		
<i>Turn taking</i>			
7. Initiation	initiates questions		
8. Response	responds as a listener		
9. Repair/revision		rarely asks for clarification	
10. Pause time	normal pauses		
11. Interruption/overlap		some overlap when signing	
12. Feedback to speakers	nods, gestures appropriately		
13. Adjacency	waits turn		
14. Contingency	stays on topic	often repeats, doesn't add	
15. Quantity/conciseness		not always informative	
<i>Lexical selection</i>			
16. Specificity/accuracy	limited, but appropriate		
17. Cohesion			*
<i>Stylistic variations</i>			
18. The varying of communicative style	adjusts speech style		
<i>Paralinguistic aspects</i>			
19. Intelligibility	signs are intelligible	verbal responses are not always intelligible	
20. Vocal intensity	normal intensity		
21. Vocal quality	normal vocal quality		
22. Prosody	almost normal prosody		
23. Fluency	normal rate and smoothness		
<i>Nonverbal aspects</i>			
<i>Kinesics and proxemics</i>			
24. Physical proximity	normal distance		
25. Physical contacts	normal contacts		
26. Body posture	normal body posture		
27. Foot/leg hand/arm move.	normal movements		
28. Gestures	normal gestures		
29. Facial expression	normal facial expressions		
30. Eye gaze	normal eye gaze		

* not applicable/no opportunity to observe

Table 5. Summary Pragmatic Protocol ratings for Chelsea

The rating was based on a videotaped sample of a conversation between Chelsea and her teachers one and a half years into her training when she had considerably less language than she does now. The rating indicates that she demonstrates a variety of speech acts, responding to directives and initiating questions and comments in a normal fashion. She also introduces topics, and tries to maintain and change them. She initiates questions, responds as a listener, uses normal pauses, nods and gestures appropriately, awaits her turn in the conversation, and stays on topic. Her choice of lexical items, while limited, is appropriate, and her signs, if not her speech, are intelligible. Furthermore, she adjusts her speech style, uses normal intensity, vocal quality, rate, and smoothness, and virtually normal prosody given her hearing loss. In nonverbal aspects, Chelsea positions herself at a

normal distance, with normal physical contacts, body posture, movements, gestures, facial expressions, and eye gaze.

The only area in which Chelsea could be rated with inappropriate pragmatics was in the realm of turn taking. Here, she rarely asks for clarification if she does not understand the content. Instead, she will often repeat what the other person has said, and does not add concise, new information on her own. This is not surprising considering her limited vocabulary and lack of experience with language.

Discussion

We have chosen two very different case studies to illustrate that pragmatic competence is an ability which can persist in the virtual absence of verbal language. Because both cases are largely nonverbal, this ability can be considered as independent of the verbal modality. This, we believe, is a necessary corrective to the tendency to treat pragmatics as an epiphenomenon of speech. In fact, we believe that both pragmatics and speech should be treated as phenomena of social interaction. The history of pragmatics guides us towards considering speech as social action, as accomplishing social deeds. These two cases provide further evidence that nonverbal social skills and abilities can exist in parallel to verbal language.

The contrast between our two cases is also instructive. With AK, language breakdown came after the development of full social competence. His pragmatic challenges relate to the loss of propositional communicativeness. He has had to adjust his social engagements to his decreased ability to convey meaning by speaking. Chelsea, on the other hand, did not begin developing verbal language until the age of 32. Until that time, she was only able to develop such social competence as was not dependent on language. As she continues to learn language, she must also learn the attendant conversational skills. Yet her abilities as a nonverbal social actor give her the basis for developing these skills in tandem. Ultimately, her language development may reach a limit determined by the critical learning period, while her social communicative development will continue to the full potential of her personality.

We began this paper by outlining the revolution that was wrought in philosophy and linguistics by the introduction of pragmatics as an aspect of understanding human communication. It should be clear that we believe this revolution has not finished running its course. There is still a predilection for installing speech at the apex of human interaction. Yet clinicians have had an insight for years, which has been hard to express, that there is more to communication than words and sentences. Our two cases, so far apart yet so similar, define a point in space of social connection. Other points in this space might be the development of verbal ability without pragmatics, or, preserved language with pragmatic breakdown. Only the total space defined by these points and others will reveal the full universe of human communicative potential.

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Appendix A

Transcription of Patient AK's speech in conversation:

Interviewer: Do you like coming to Group? (referring to the weekly support group meeting)

Patient AK: (nodding emphatically) Tō-nō tō-nō. Nō-tō. Tō-tō. Tō-nō tō. Tō-tō. Tō-tō.

Interviewer: It's a nice group of people, isn't it?

Patient AK: Tō-tō-tō-tō.

Interviewer: Does [your wife] enjoy it? [Your wife] enjoys sitting with the other...

Patient AK: (shrugs) Tō-tō. Tō-nō tō-nō. (waves hand in air) Oō, tō-tō tō-nō tō-nō tō-nō tō-nō. (makes pushing-away gesture with hand, points to self, then waves it off) Tō-tō tō-tō tō-tō.

Interviewer: Yeah.

(Underlining indicates syllabic stress.)

Appendix B

Transcription of Chelsea's speech in conversation:

(Both participants sign at the same time they are speaking.)

Interviewer: (addressing second interviewer) I've told Chelsea for the last two days that I had a gift for her.

Chelsea: Gift.

Interviewer: From Colorado.

Chelsea: Colorado.

Interviewer: I remembered! (presents gift) Do you want to open it?

Chelsea: (accepts wrapped gift, begins to untie ribbon.)

Interviewer: Ribbon.

Chelsea: Ribbon.

Interviewer: What do you think it is?

Chelsea: Think? (shakes head)

Interviewer: A book. Think it's a book?

Chelsea: Book? Don't think.

Interviewer: Is it a blouse?

Chelsea: Blouse? No. You...collar.

Interviewer: Collar? Oh, a scarf. Yes, for my birthday....

Chelsea: (continues unwrapping, still unfolding paper)

Interviewer: There's nothing....I tricked you!

Chelsea: (laughs; takes out small box) Oh! Thank you! (hugs interviewer) Jewelry!

Interviewer: That is named 'turquoise'. (finger spells 'turquoise')

Chelsea: Turquoise.