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Rapid Recovery from Aphasia: A Detailed Language Analysis

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The paper presents a daily analysis of the language recovery of a patient who was globally aphasic at the time of her first observation and who had recovered language, as measured by the Western Aphasia Battery, at the time of her discharge 14 days later. The paper emphasizes the relatively regular growth of normal syntactic, lexical, and pragmatic features coupled with similar regular decreases in aphasic features. Observations of both phenomena are necessary to describe language recovery. © 1985 Academic Press, Inc.

INTRODUCTION

There is no literature that has documented the spontaneous recovery of language in a microscopic way. Mohr's study (1973) does report the patterns of change for three Broca aphasic patients; but, the data are largely impressionistic and limited to summary statements. For patients who recover rapidly, it appears that language production and/or comprehension are somehow better some days than on previous days, but whether this is a gradual or an all-or-none change has not been investigated. For patients whose recovery is slower, changes on aphasia test performance have indeed been documented, but always within the context of the tested modalities and functions, never within the context of language use (cf. Lomas & Kertesz, 1978; Kertesz & McCabe, 1977; Kenin & Swisher, 1972; Prins, Snow, & Wagenaar, 1978). The manner of change is of theoretical interest to both neurolinguists and students of first language acquisition. When parallels exist, then the similarities between the two phenomena may possibly increase understanding of brain–language relationships generally. When the two processes have comparatively little

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in common, there is also potential significance for furthering information about what is preserved and lost in aphasia as it generally relates to cognitive phenomena and brain damage.

The purpose of this case report is to contribute a potential "baseline" for studying rapid recovery. We describe in detail the manner in which language recovery was effected spontaneously in one patient who was unresponsive at the time of our first observation, and whose aphasia and cortical quotients as measured by the Western Aphasia Battery (WAB) approached normal limits at the time of her discharge from the hospital 15 days later. No formal testing was done until the WAB was administered on the final day of her hospitalization. The data reported here consisted of 15-min, semistructured conversational interactions that took place on 13 of the 15 days. These interactions were conducted by one of the authors (with the exception of J.M. and O.M.R., all served at least once as principal interactant).

We conversed, observed and recorded anything that occurred during each visit. Most typically, the interactions are dyadic; however, a physician's visit is included in Day 10's observation, and for a few of the observations, family members' or nurses' conversations with the patient were included. The interactant often asks questions or may direct the patient at some points to follow commands or to name things, but the style of the interactions is conversational. All conversationalists have been trained and indoctrinated to be sensitive to the language disorders of patients, and within the confines of that sensitivity, to be as nondirective as possible while at the same time obtaining a sampling of the patient's language and communicative strengths.

THE PATIENT

Mrs. F., a right-handed bilingual (Greek/English), 39-year-old married woman was found unconscious by her husband in the hall near the bathroom door on the afternoon of 1/27/82. She vomited and was rousable, although speechless and unable to sit, lapsing at times into lethargy. At breakfast she had been alert and well. During rescue transport to her local medical center, she was administered 50 ml 50% dextrose as well as Narcan without change in her level of awareness. During the next several hours, she varied in level of consciousness, did not speak, and was right hemiplegic. The CSF pressure was 130 mm and the colorless fluid contained 0 WBC and 24 RBC; protein, 17 mg%; glucose, 273 mg% (blood sugar, 521 mg%); with normal India ink preparation for cryptococcosus.

On transfer to Presbyterian University hospital 9 hr later the vital signs were temperature 39.9°C (R), blood pressure 170/90, pulse 120 regular, R22. Physical findings included diabetic retinopathy with rare retinal hemorrhages, clear lungs, and normal heart sounds. There was distal leg edema. She groaned but remained speechless despite occasional wakeful agitation. Cranial nerve examination revealed that she could fix visually and follow a visual target consistently although there was mild paresis of right eye abduction. Her pupils were 4 mm, equal, and light reactive. No facial paresis was noted and swallowing and gag were symmetrical. Her neck was supple. A severe right hemiparesis (arm greater than leg) was present. The right plantar reflex was extensor; the left was equivocal. Reflexes in the right

arm and leg were slightly reduced. Response to pinprick and other sensory stimuli were equal on both sides of her face and body.

Laboratory information at the time of admission showed Hgb 12.1%, Hct 36%, WBC 9500 with 79 PMN, 5 bands, 14 lymphs, 1 mono, 1 basophil. There were 333,000 platelets. BUN was 16 mg%, Na 131, K 3.5, Cl 103, HCO_3 22 meq/liter, glucose 348 mg%, pH 8.53, PCO_2 23, PO_2 84. The EKG showed normal sinus rhythm with nonspecific ST-T wave changes. Chest X-ray confirmed bilateral interstitial fibrosis with bilateral hilar and paratracheal node enlargement consistent with previously diagnosed sarcoidosis. The CT scan without enhancement showed normal ventricles and no abnormalities. A second CSF analysis demonstrated 2 lymphocytes and 2 RBC per cubic millimeter with protein 18 mg% and glucose 199 mg%. Cultures of CSF were sterile.

Course in hospital. While remaining febrile in the 38 to 38.5° range for the first 5 days, no important changes in CBC occurred, and multiple blood and urine cultures were negative. About 30 hr after onset of her illness (the evening of the first Presbyterian University Hospital admission day) she had two right-sided focal motor seizures followed by three generalized convulsions. Treatment with phenytoin was associated with no further seizures although repeated EEGs demonstrated focal and paroxysmal disorganization and spike discharge from the left temporal and temporofrontal region. The day after the clinical seizures she showed focal continual electrical status despite being awake but mute. The focal discharges persisted in a recording made 10 days later. Repeated blood glucose value samples, three to six times daily during this time, ranged from 200 to 275, although two values reached 348 and 521 mg%.

Rapid return of motor function occurred in the first 3 days, being complete within 1 week. Multiple further studies did not further clarify the pathogenic factors. A CT scan repeated with and without enhancement showed effacement of the sulci of the left temporal parietal and frontal area without ventricular displacement, suggesting some hemisphere swelling. The balance of evidence was considered to favor cortical vein thrombosis rather than arterial infarction or hyperosmolar nonketotic coma, or metabolic, or other cerebral disease.

ANALYSIS

Each day's conversational interaction was recorded using an Aiwa TPS30 tape recorder. An external Sony Electret microphone was attached to the patient's gown and used to record the interaction. The recorder's internal microphone was used simultaneously by a trained observer to comment on nonverbal behaviors. Played back in stereo, both conversation and comments are audible. All tapes were transcribed and checked for accuracy by a second listener. These transcriptions were then coded and again transcribed for computer analysis.

SALT (Systematic Analysis of Language Transcripts) is a computer program developed by Miller and Chapman (1982). Primarily designed to capture language interactions of adults and children, the program has been modified by Miller to accommodate adult–adult language interactions, including those between a normal and an aphasic adult. The analysis concentrates upon some of the original SALT categories shown in Table 1, including total complete utterance count, type–token ratios, mean length of utterances (MLU) for words, distributions of utterances by length (i.e., number of words), distributions of conversational turns by utterance length, which essentially measures amount of "floor" or

TABLE 1
SYSTEMATIC ANALYSIS OF LANGUAGE TRANSCRIPTS (SALT): CATEGORIES USED IN PRESENT STUDY

Total complete utterances
Type–token ratio
Mean length of utterance (words)
Utterance distribution number of words
Distribution of conversational turns by utterance length
Counts and listings of:
Bound morphemes
Question words
Negative words
Conjunctions
Modal auxiliaries
Semiauxiliaries
Time words
Indefinite referents
Mental verbs

"speaking time," and some indirect measures of syntactic complexity. These include counts and actual listings of bound morphemes, question words, negative words, conjunctions, and modal verbs. Some word counts that relate to lexical usage are also furnished.

In addition, some parameters of conversational competence were coded and analyzed. These parameters are shown in Table 2, roughly divided into three groups. The first is a set of conventional conversational strategies including queries, simple and elaborated responses to queries, simple and elaborated topic/comment remarks, and conversational repairs and revisions. These are termed conversation *facilitators*. The second group is a laundry list of potential aphasic errors, including uncompleted thoughts, perseverations, echoic responses, evidences of miscomprehension, erroneous information supplied, and spoken failures, including failed word-searches, phonemic and semantic paraphasias, jargon, neologisms, agrammatic utterances, and examples of conduite d'approche. These are referred to as conversation *tanglers*. The third group includes stylistic verbal idiosyncracies (e.g., "You know"), fillers (such as uh—ah—um), and counts of dysfluencies, hiccoughs, sighs, and laughs. We refer to these as *metaconversational features*.

Prepared transcripts are analyzed by Harris/5 computer, and the resultant printout furnishes the entire transcript, numbered by utterance, appropriate frequency counts, and listings from the original SALT categories for both conversational participants and for the pragmatic analysis. The program provides listings of each type of utterance coded as described above for the designated patient.

TABLE 2
CONVERSATIONAL CATEGORIES ANALYZED

Conversation Facilitators	*Conversation Tanglers*	*Metaconversational Features*
Queries	Uncompleted thought	Verbal idiosyncracy
Response to queries	Perseveration	Fillers
One word or common phrase	Evidence of miscomprehension	Dysfluency
Two or more words or elaborated	Denial of self-effort	Sighs
Topic/comment	Echolic response	Laugh
Simple	No response	Hiccoughs
Elaborated	Supplies erroneous information	Whisper
Introduces new topic	Spoken failures	
Agrees	Failed word search	
Social conventional remark	Phonemic paraphasia	
Opening/closing	Semantic paraphasia	
Lubricant	Jargon/neologism	
Repairs/revisions	Agrammatism	
	Conduite d'approche	
	Unintelligible utterance	

RESULTS

The general changes of this case study are summarized by Fig. 1. Figure 1a shows MLU in words for the 13 observations. After Observation 6, MLUs are within the range of normal adult variation found in nonlanguage impaired stroke patients from our sample (range = 6.11–10.52) as well as the normal conversational interactants. Figure 1b plots total complete utterances, defined as whatever is included between normal pauses. With the exception of the spurt at Observation 4, the upward progression over time is again apparent. The general trend is for gradual increase in utterance length over time, rather than the sudden appearance of adult-length utterances. Note that on both 1a and 1b the corresponding number of MLUs and complete utterances for the conversational interactant are presented. From Observations 1 through 6, it can be seen that the clinician spoke more, and used consistently longer utterances, than did Mrs. F. From Observation 9 on, a more normal dyadic pattern is observable, with the patient and her interactant appearing to engage in reciprocal interaction, each responding to the other with utterances of similar length and frequency and sharing the 15 min of conversation time more equitably.

Figure 1c plots conversation facilitators and tanglers for the patient and, in a more dramatic way, shows the regularity and gradual change by which normal return was accomplished. The solid line shows the percentage of error-free utterances in each facilitating category. The striped line is the reciprocal percentage of utterances marked by at least one form of conversation tangler. The presence of tanglers, and their consistent reduction, is perhaps the major way in which aphasic language recovery differs from normal language acquisition. Children acquiring language simply do not do the things we have called tanglers, for most of those features reflect the types of linguistic labyrinths available only to once-competent speakers of a given language. The point is to emphasize the reciprocity of the two parameters, and the relatively smooth replacement in this patient of tangled with more and more normal conversation.

Within the context of the steady increases in positive attributes and the corresponding decreases in negative attributes, we believe that the marked increase in output at Observation 4 sets apart the first and second major periods in this patient's language recovery, while the consistent patient–interactant parity begun at Observation 9 signals the beginning of the return of normal language. In effect, Observations 1–3 constitute one period of recovery, Observations 4–8 constitute the second period, and Observations 9–13 are the final period.

At the conclusion of each interaction, conversationalists rated the severity of the patient's language disorder on a 5-point scale, reviewed the interaction, compared it to concise descriptions of aphasic symptomatology, and made a decision as to the type of aphasia. It is of interest that the patient's level of severity was rated as 5 (severe) until Observation

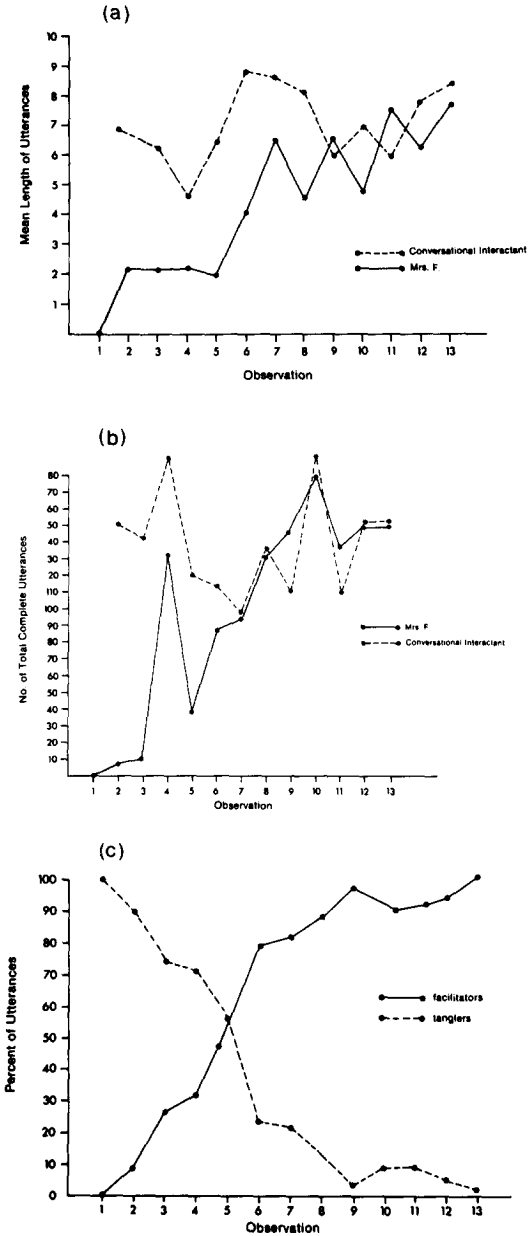

FIG. 1. MLU, total utterances, and percentage of tangled and facilitated utterances across 13 observations.

4 when it was rated as 4. At Observation 7, the rating became 3 and at Observation 9, it became 2 and remained there until the end. Mrs. F.'s initial lack of responsiveness resulted in early classification as global, which then changed to transcortical sensory aphasia. At the sixth observation, her language was consistent with one of the language patterns associated with subcortical lesions. By the ninth observation, her symptoms had resolved into a mild anomic aphasia.

At discharge, Mrs. F.'s WAB Aphasia Quotient was 93.6 (normal cutoff = 93.8). A 15-min segment from an extended interview with her at 1 month postdischarge showed, for every positive attribute described here, increases over the sample from the last day of hospitalization, as well as improvement (to 94.4) on the WAB.

Before turning to the changes in syntactic, lexical, and pragmatic skills, it should be pointed out that Mrs. F. was bilingual, speaking Greek and English with equal fluency. She spoke only Greek to her husband while hospitalized, although she never spoke to the interviewers in any language but English. Her English was Standard Western Pennsylvania, with no Greek dialectal features. Late in the course of her recovery, she reported that her earlier language problems were similar in both languages.

Syntactic Growth

Until Observation 7, growing syntactic complexity can be inferred from the increasing MLU because this relationship has been relatively well established, at least for utterances up to about five morphemes in length (Brown, 1973). At Observation 7, the MLU is consistently beyond the level of Brown's Stage V and approximating the range of MLUs demonstrated by Mrs. F.'s conversational partners.

Two syntactic features are used to illustrate Mrs. F.'s growing syntactic usage. Figure 2a illustrates the frequency of bound morphs in the conversation of each conversational participant. These include plurals (s, es), verb tense (d, ed, ing), third person singular (s, es), possessives, contractions (-'m, -'s, -'ll, -'re, -ve, -n't, -'t), and adjectival and adverbial inflections (ed, er, ly). By Observation 9, bound morph frequencies are interspersed. Mrs. F. was using both a greater total number of bound morphs, and a greater variety of them. Once bound morphs began to reappear in Mrs. F.'s speech, they were never thereafter omitted, overextended, or misused. This is possibly because agrammatism was never a prominent feature of Mrs. F.'s aphasia. It is probably also a very real difference between returning adult syntax and the syntactic development of children.

Figure 2b shows another indirect measure of syntactic complexity, Mrs. F.'s use of conjunctions in spontaneous speech. As with bound morphs, not only frequency but variety in the conjunctions used increased. For example, at Observation 11, the day with the highest frequency of

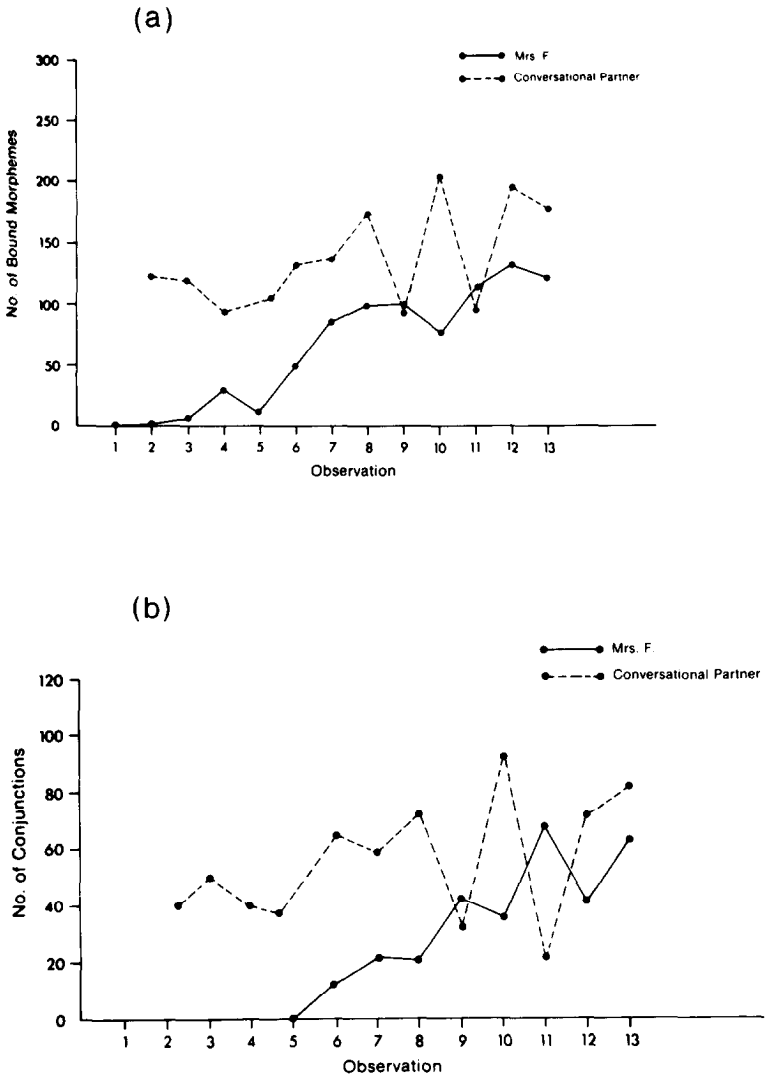

FIG. 2. Bound morph and conjunction changes across 13 observations.

conjunctions, she used "and, as, after, because, but, or, so, then," and "until." And, again it is noteworthy that once they were established, conjunctions were always used appropriately. Similar growth in frequency and usage of modal auxiliary verbs and in negative constructions was also noted. The only measured feature of syntactic complexity that demonstrated no changes over time was the use of question words, and its corresponding pragmatic category, the use of queries. Basically, Mrs. F. was not a questioner, even in the 1-month posthospitalization interview.

We believe this is a stylistic phenomenon. However, her lack of questions is also undoubtedly influenced both by the circumstances of being hospitalized (where one is supposed to answer, rather than ask questions) and of the interactants' tendencies to seek answers to queries and to solicit speech nondirectively, rather than to encourage questions.

Lexical Growth

Three features of lexical changes over time comprise Fig. 3. Figure 3a shows the number of different words used by both conversationalists each day. Since each sample was 15 min in length, it furnishes a rough measure of lexical recovery. Again the overlap between Mrs. F. and her conversational partner appears on Day 9. Although there are still a few paraphasias and word finding problems in Mrs. F.'s conversation, her and her partner's lexicons are similarly extensive. "New" words, that is words not appearing in previous transcripts, were counted. This measure provided a revealing feature of vocabulary growth. For example, Mrs. F. used 9 new words at Observation 3 in contrast to 116 at Observation 9. By that time, she clearly demonstrated the ability to produce more speech and integrate more lexical variety into her conversational output.

Two features of lexical acquisition have been collapsed, and presented on Fig. 3b. In Mrs. F.'s protocol, both features showed similar growth. Because both of them indirectly assess the lexical–conceptual overlap that is important to language acquisition, it seemed justifiable to collapse the data for presentation. The figure plots the cumulative total of so-called "mental verbs" (for example, "think," "believe," "wonder," etc.) and words expressing time relationships (e.g., "always," "until," "begin," etc.). Mental verbs are thought to capture "metalinguistic awareness," or understanding of the role of language in expression of ideas. Thus, their inclusion in verbal expression grows as children acquire more language (Gleitman et al., 1972; de Villiers & de Villiers, 1974; Johnston et al., 1981). The expression of time words and concepts similarly increases with increasing conceptual development (Piaget, 1974). As such, they may be a rough index of growing semantic sophistication. As the figure shows, these features appear with increasing frequency during the course of Mrs. F.'s recovery. This patient apparently is not merely acquiring more words but expressing more complex ideas. The peak at Observation 9 is of interest. During this conversation, Mrs. F. described her own perceptions of her cognitive/linguistic problems and their changes over the past week. We believe the topic itself produced an artificially high number of these words, as spatial concepts ("in," "after," "back," etc.) also began to appear with increasing frequency in Mrs. F.'s conversation, beginning with 5 instances at Observation 4 and progressing to 29 at Observation 13.

The analysis suggests a quantitative similarity between lexical growth

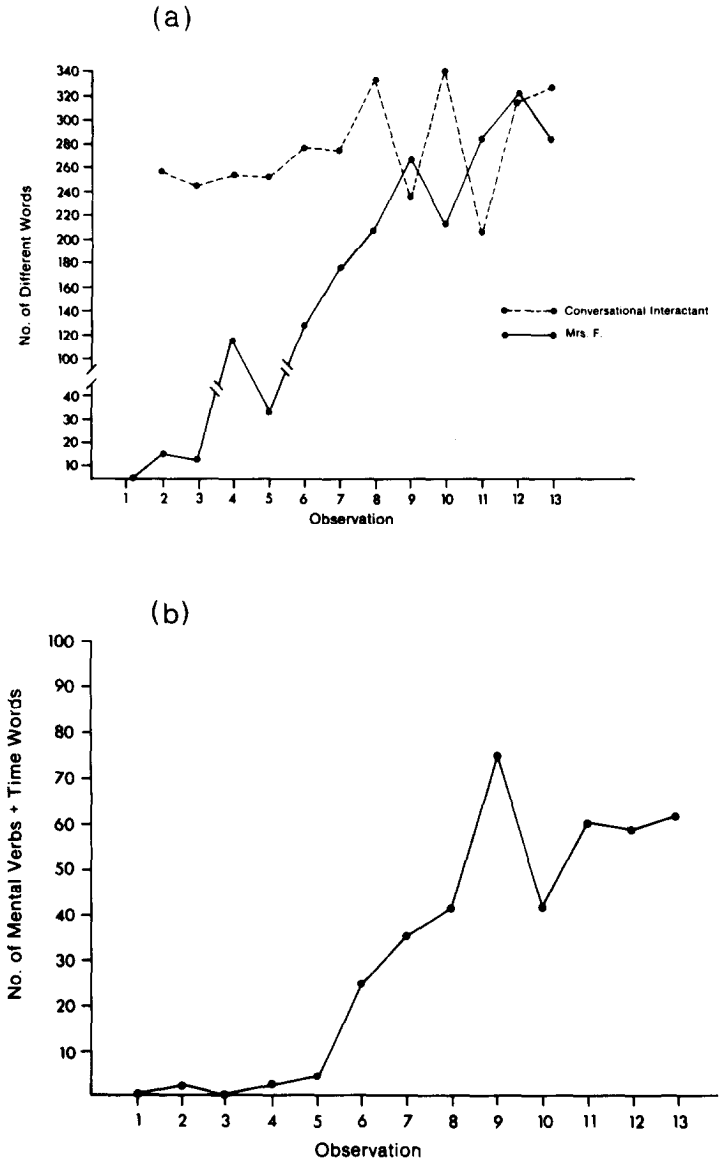

FIG. 3. Changes in number of different words and mental verbs plus time words across 13 observations.

in children and in Mrs. F. The similarity is probably limited to producing more words and expressing more concepts, and no structural similarity is implied here. Mental and time words, for example, initially accounted for 13% of all different words used by Mrs. F. in Observation 2 and grew to 21% at Observation 9.

Although it is not captured by the SALT analysis, the number of topics

of conversation also grew throughout the interactions. Earlier topics were limited to discussions of Mrs. F.'s medical status, identification of her family members, and to some of her personal likes and dislikes. Later the topics ranged more widely, including Mrs. F.'s perceptions of her language/cognitive problems and her anxieties about reestablishing her routines at home once discharged.

Pragmatic Changes

Table 3 summarizes the relative frequencies with which specific types of tanglers and facilitators occurred in Mrs. F.'s conversation. The table is limited to the fewest but most prevalent major categories, that is, the fewest needed to account for an arbitrary 50% of her utterances. In some instances, as at Observation 2, only one category was represented; in others, as at Observation 7, five categories were represented. This table allows the reader to note the number of contributing categories and the replacement of tanglers (marked −) with facilitators (marked *). The increasing inclusion of a variety of facilitators can also be noted. The growth in elaborated comments is particularly illustrative of change.

Pragmatic analysis of Observation 4, previously suggested to have initiated the second phase of Mrs. F.'s recovery, is especially instructive. This day contrasted sharply to the preceding and immediately following days by its very high verbal output. Mean length of utterance was only 2.28 on that day, yet Mrs. F. demonstrated almost every type of conversational tangler. In effect, she was talking a lot, and most of it was tangled. The pragmatic analysis suggests that on Day 4, Mrs. F. was initiating one of the earliest developmental forms of pragmatic skill, turn taking, and holding her place in conversation by tangled, aphasic verbal means. Once this form was established, output returned to its previous level and replacement of tangled by facilitated conversation began its upward progression again. Figure 4 presents two illustrative features of pragmatic recovery. Figure 4a shows the recovery of the use of topic/comments across all hospital observations. Figure 4b plots the relative decrease in unelaborated simple answers to queries and the relative increase in elaborated answers. It is important to remember that because conversation time is limited to 15 min, as more and more categories are introduced, less and less time is available for exercising this wider range of behaviors. Thus, on Day 12, for example, the sharp drop in responses to questions is probably related to its peak number of comments, making the interaction a more normal conversation, a less obvious interrogation.

The data suggest that pragmatic reestablishment is similar in form to development of pragmatic skill in children. Turn taking was seen early, and appeared to be at the expense of meaningful conversation. Both the increasing use of a wider range of facilitators and the increasing elaboration parallel language acquisition. However, the central "adultness" of Mrs.

TABLE 3
SPECIFIC FACILITATOR–TANGLER CATEGORIES CAPTURING >50% OF UTTERANCES

Day 1	No response (to other's comment or request)	100%−	Day 8	Elaborates ongoing topic	15%*
Day 2	No response	52%−		Agrees	13%*
Day 3	No response	41%−		Answers, 2+ words	13%*
	(Evidence of) miscomprehension	25%−		Comments, ongoing topic	9%*
Day 4	Incomplete utterance	16%−	Day 9	Comments, ongoing topic	14%*
	Miscomprehension	14%−		Elaborates, ongoing topic	14%*
	Perseveration	8%−		Answers, 2+ words	9%*
	Echoic	8%−		Agrees	8%*
	Agrees	8%*		Repairs/revises	5%*
Day 5	Miscomprehension	16%−	Day 10	Social lubricants	22%*
	Answers/word or common phrase	12%*		Comments, ongoing topic	12%*
	No response	12%−		Agrees	11%*
	Answers, 2+ words	7%*		Elaborates, ongoing topic	11%*
	Echoic	7%−	Day 11	Elaborates, ongoing topic	22%*
Day 6	Agrees	22%*		Revises/repairs	20%*
	Comments, ongoing topic	8%*		Comments, ongoing topic	11%*
	Repairs/revises	8%*	Day 12	Comments, ongoing topic	18%*
	Answers, 2+ words	7%*		Agrees	14%*
	Repeats own comment	7%*		Elaborates, ongoing topic	14%*
	Social lubricant	7%*	Day 13	Agrees, elaborates	18%*
Day 7	Elaborates, ongoing topic	15%*		Agrees	18%*
	Repairs/revises	11%*		Social lubricants	17%*
	Answers, 2+ words	10%*			
	Answers, 1 word	7%*			
	Comments, ongoing topic	7%*			

Note. *, Facilitators. −, Tanglers.

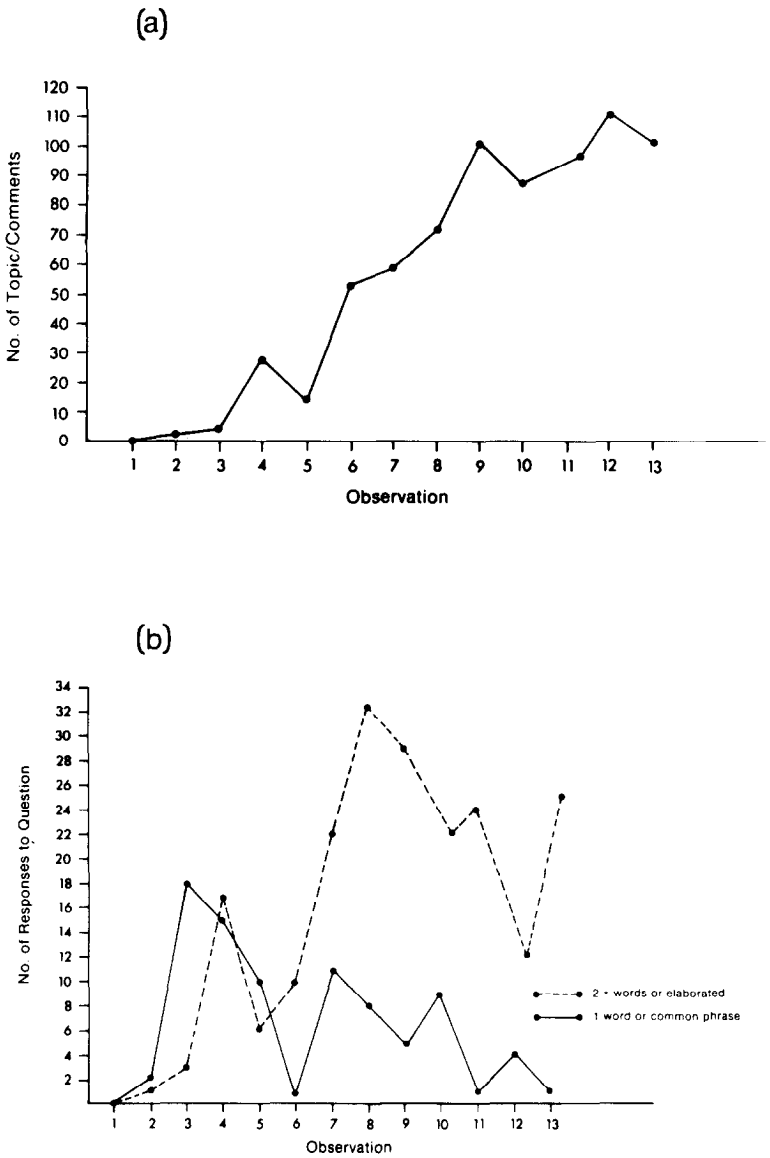

FIG. 4. Topic/comments and responses to questions: changes across 13 observations.

F.'s behavior is not easily captured without the reestablishment of another behavior, exemplified by Fig. 5.

This figure plots the return of individual stylistic verbal instrusions, or verbal idiosyncracies. Mrs. F.'s normal speech is littered with "ya know," a feature we did not recognize until almost the last observation. It too shows the gradual progression over time, starting later, but remaining true to the acceleration of her more sophisticated pragmatic forms.

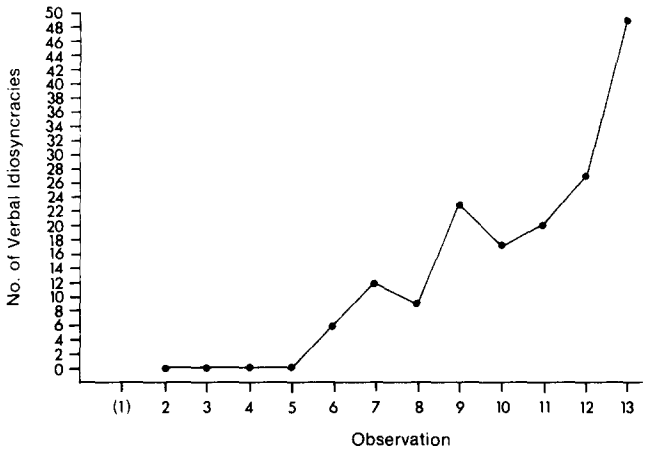

FIG. 5. Changes in number of verbal idiosyncracies across 13 observations.

Table 4 is a summary table. It compares all major features of the daily observations at the two major breakthrough points, Observation 4, with its dramatic increase in output and Observation 9, when for the first time on every measure for which we have her partner's comparative data, Mrs. F. and the partner's speech were at parity. It is probably accidental that the samples are similar in terms of total number of complete utterances; however, that similarity serves well to heighten the richness of Day 9's output. The comparison also heightens the impression that any valid detailed analysis such as this must account for a number of features simultaneously, rather than accounting for them sequentially or in isolation.

CONCLUSION

It is not our intent to suggest that Mrs. F. presents a typical case of aphasia. First, her language problems were initially too extensive to have predicted much of what followed in the next 2 weeks, and the few rapidly recovering patients in the literature were not initially as severely aphasic as she was. Second, full recovery within this time period regardless of the initial severity is also atypical. Nevertheless, patients such as Mrs. F. furnish the neurolinguist with a unique opportunity to study the behavior of recovery in microcosm. They also furnish a unique opportunity to compare language development with language recovery, and to search for similarities and differences in the two phenomena that should be of interest to students of language. The findings of this study are elementary ones, and obviously more data are necessary before parallels can be drawn or lack of parallels articulated. But some similarities exist between language development and Mrs. F.'s language return, and the superimposition on them of her aphasic symptomatology presents an interesting and provocative model for recovery. Indepth analyses of how syntactic,

TABLE 4

SUMMARY COMPARISON OF MAJOR POINTS OF CHANGE IN MRS. F.'S RECOVERY (OBSERVATIONS 4 AND 9)

	Day 4	Day 9
No. of complete utterances	153	147
Turn length: 1–2	145	76
3–4	2	12
5	1	2
Type–token ratio	.43	.37
Mean length of utterance	2.28	6.55
Syntax		
No. of bound morphs	29	100
No. of different bound morphs	8 (of 17)	15 (of 17)
No. of conjunctions	0	42
No. of different conjunctions	—	6 (of 12)
Lexicon		
No. of different words used	116	267
No. of mental verbs used	1	41
No. of time words used	2	18
No. of indefinite referents used	12	63
Pragmatic Analysis		
Facilitators		
Queries	0	4
Response to queries	32	35
1 Word/common phrase	15	5
2+ Words or elaborated	17	29
Topic/Comment	27	101
Simple	26	61
Elaborated or introduces new topic	1	40
Repairs/revisions	3	13
Social conventions	10	11
Agrees	18	27
Tanglers		
Uncompleted thought	37	1
Perseveration	19	0
Evidence of miscomprehension	32	0
Echoic response	18	0
Denial of self-effort	12	2
No response	13	0
Supplies erroneous information	7	0
Spoken failures	0	0
Failed word search	2	0
Phonemic paraphasia	7	0
Semantic paraphasia	1	0
Neologism, jargon	3	1
Agrammatism	0	0
Conduite d'approche	0	0
Unintelligible utterance	0	0
Metaconversational features		
Verbal idiosyncracy	0	23
Dysfluency	3	13
Laugh	2	22
Whisper	7	0

semantic, and pragmatic abilities change over time may highlight important trends of the spontaneous recovery period. Mrs. F.'s early changes, for example, are best captured by examining her remarkable daily growth in lexical and pragmatic skills.

Finally, how can the rapid evolution through a number of aphasia classifications, as well as the extent of Mrs. F.'s recovery, be explained?

The syndrome evolution is of interest primarily because, in Mrs. F.'s case, it appears to represent the generalized attempts of the whole brain to reestablish function, rather than the established patterns that typify these syndromes in chronic patients. The various types of aphasia Mrs. F. appeared to demonstrate before settling into a fairly clean anomic aphasia can be associated with generalized brain disease. Alexander and LoVerme (1980) and McFarling et al. (1982) both point out the similarities between transcortical sensory aphasia and language patterns associated with subcortical lesions and probably explain her evolution through these syndromes.

However, an alternative explanation may also be advanced. Once she was talking, Mrs. F.'s earliest sparse output was fluent and at no point were there any behaviors suggestive of anterior syndromes. And once comprehending at all, she began to repeat what was said to her. It is tempting to interpret the echoic repetition both as a strategy to hold her place in conversation and to increase her chances of understanding what was being said to her. If this is the case, then "aphasic syndromes" per se cannot be used to explain her behavior. Regardless, the important lesson for students of rapid recovery in aphasia is that today's patterns or syndromes may be replaced tomorrow by others. Beyond the fluency/nonfluency dichotomy, traditional notions of aphasic classification must be applied cautiously to such patients, and rethought frequently during the recovery period.

A few speculative comments on the extent and rapidity of Mrs. F.'s recovery conclude this paper. First, venous infarction has a better prognosis overall than does arterial infarction, a feature we can hardly ignore. Second, the fact that Mrs. F. was equally fluent in two languages may also have played a role. Ojemann and Whitaker (1978) have raised the possibility of different cerebral organization for language in bilinguals, and her rapid recovery may be related to this factor. Third, she was relatively young, a factor that is also related to better prognosis. All may have played separate or interactive roles.

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