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"If You Just Stay With Me and Wait. . .You'll Get an Idea of What I'm Saying": The Communicative Benefits of Time for Conversational Self-Repair for People With Aphasia

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ABSTRACT

Purpose: This study investigated the communicative benefits of self-repair during conversation for persons with aphasia (PWAs). Self-repair of trouble sources is an interactional priority that emphasizes autonomy and competence. Of equal importance, conversationalists desire to minimize silences and work together to ensure forward movement (progressivity) of conversation. Simultaneously achieving progressivity and self-repair is challenging in aphasia, and PWAs and their partners often make trade-off decisions between these two activities. Conversation-level aphasia interventions usually focus on supportive techniques that promote participation while maintaining progressivity, effectively favoring progressivity over self-repair. This study evaluates the benefits of an alternative approach that shifts the emphasis to self-repair, thereby highlighting potential trade-off costs of routinely forgoing self-repair to achieve progressivity.
Method: Ten people with mild-to-moderate aphasia each held two conversations with two different partners. When trouble sources characterized by silent and/or filled pauses occurred, partners maintained a supportive and engaged stance, allowing PWAs time to self-repair. We analyzed language produced during these "edited turns" using three paradigms considering form, content, and use.
Results: The data yielded 311 edited turns. For form, on average, each edited turn resulted in 3.72 words; for content, most edited turns contained autobiographical information; for use, approximately 40% of edited turns introduced new information, and 40% added to the ongoing topic. The remainder were either ambiguous or comments such as, "I can't think of it."
Conclusions: When given engaged support and time to self-repair, PWAs contributed meaningful personal information to conversations for approximately 80% of edited turns. Importantly, self-repair often resulted in self-expression that directed the conversation, which is a communicative role critical for empowering agency and identity. This research opens a dialogue about benefits and limitations of approaches that prioritize either progressivity or self-repair and how to balance the two to optimize therapeutic benefits for each individual.
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Everyday casual conversation is progressive (Stivers & Robinson, 2006). Conversation partners seek to advance the interaction by responding to each other, expanding on the current topic, or introducing a new topic while minimizing silences. Occasionally, trouble sources or turns that somehow threaten the preferred forward progression of conversation occur (Schegloff et al., 1977). Trouble sources may take the form of factual inaccuracies, ambiguous utterances (Drew, 1997), or turns in which a speaker struggles to readily and speedily retrieve words (Oelschlaeger, 1999). Often, when word retrieval difficulties occur, speakers produce turns that include brief

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silent pauses or filled pauses (items such as "um" or "uh"; Goldman-Eisler, 1968).

Speakers usually deal with trouble sources by engaging in repair sequences. In everyday conversation, there is a preference for speakers to self-repair, rather than to have the trouble source made explicit or corrected by the partner (Schegloff et al., 1977). Concurrently, there is also a preference for progressivity of the conversation (Schegloff et al., 1977). Speakers without communication disorders usually complete needed repairs independently and quickly (Schegloff, 1992), and when silent or filled pauses occur, they are brief. Therefore, despite trouble sources, speakers often achieve both conversational progressivity and self-repair, resulting in advancement of the conversation and independent self-expression of ideas.

Less often, when trouble sources occur, partners may implicitly or explicitly negotiate a choice between forgoing self-repair or forgoing progressivity. When progressivity is chosen over self-repair, the partner supplies the needed word or provides other help. This choice may reduce the speaker's autonomy by limiting self-repair and self-expression. In contrast, when self-repair is chosen over progressivity, the partner waits for the speaker to repair the turn. This choice may be frustrating for one or both partners and slows the forward movement of the conversation.

Available data show that speech produced by persons with aphasia (PWAs) features a relatively large number of turns that have lengthy periods of silence (Angelopoulou et al., 2018) or filled pauses (Christenfeld & Creager, 1996). When pauses occur during conversation, interlocutors may step into the PWA's turn space (Beeke et al., 2007), attempt to complete the PWA's sentences (Purves, 2009), offer guesses about the words the PWA is attempting to produce, or even encourage the PWA to abandon their attempt to retrieve an elusive word. One recent adjuvant to intervention, Balancing Effort, Accuracy, and Response Speed (Cavanaugh et al., 2021; Evans et al., 2019, 2020, 2021; Quique et al., 2021), suggests that, during structured, clinician-controlled, word-level tasks that have restricted target answers, PWAs should stop trying to retrieve words after a predetermined amount of time has elapsed due to an increasingly diminished likelihood of success. However, in a flexible and interactional context such as conversation, actions such as these that routinely favor progressivity over self-repair may potentially deprive PWAs of opportunities to formulate their own turns when sharing their ideas. Furthermore, in conversation, if the interlocutor interrupts the PWA while the person is attempting to resolve trouble sources, the compounded effect is that the PWA participates in neither progressivity nor self-repair. Accordingly, the PWA's opportunity to engage in these important conversational activities that are common and preferred in interactions between adults is diminished. While the PWA may at times desire (and request) assistance with repair, if conversation partners engage in too many of these directive repair behaviors, the PWA may assume a more passive role in determining the direction that a conversation moves in.

Similarly, interactions between trained clinicians and PWAs may include repair sequences in which PWAs are not afforded the opportunity to construct and complete turns that accurately reflect their intentions. Commonly cited and used repair techniques such as key wording, providing PWAs with choices to choose from, or asking a series of related yes/no questions are often beneficial because they promote participation and enable conversations to progress (Kagan, 1999). However, because these techniques involve the partner without aphasia constructing a scaffold that the PWA can use to construct their turn, they have the (inadvertent) effect of creating a turn at talk that may not precisely conform to the PWA's intent and may restrict the person's opportunity to generate more open-ended and flexible responses.

Within aphasiology, a growing body of interaction-focused literature explores how the communicative environment, including conversational partners without aphasia, may influence how PWAs engage in conversation. Heeschen and Schegloff (1999, 2003) observed that people with nonfluent aphasia produced more grammatically complete and complex turns in testing situations in comparison to causal conversation. Laakso and Klippi (1999), Lindsay and Wilkinson (1999), Laakso (2003), Barnes and Ferguson (2012), Goodwin (2003, 2004, 2006), and Beeke et al. (2020) all examined communication breakdowns in conversations between people with and without aphasia and described the roles that interlocutors without aphasia play in repair processes. In other topic-related studies, Horton (2007) found that speech-language pathologists (SLPs) encourage clients to pursue topics that emphasize PWAs' statuses as disabled individuals by making issues such as clients' use of multimodal communication or clients' communication difficulties while shopping the foci of conversation. Similarly, Isaksen (2018) described how clinicians selectively develop topics to encourage clients to make certain decisions about treatment. For example, in discussions about ending therapy, SLPs may fail to respond to indications that clients do not agree with decisions about terminating therapy. Instead, SLPs may provide justifications for terminating intervention. The segment of interaction related to termination may have some of the features of a negotiation in order to promote the idea that clinical decision making is a collaborative process. However, all participants (clients and SLPs) act in ways that indicate that the SLPs have considerable power to end services. In conversation groups for PWAs, the actions of facilitators (who usually do not have aphasia) can promote participation by all group members (Archer et al., 2020; Simmons-Mackie & Damico, 2009; Simmons-Mackie et al., 2007) or

can discourage group members from actively engaging in interaction (Lee & Azios, 2020; Simmons-Mackie & Damico, 2009; Tetnowski et al., 2021). A number of therapy approaches apply the findings generated by these and other studies. Aphasia Couples Therapy (Boles, 2011), Facilitating Authentic Communication (Azios et al., 2020; Damico et al., 2015), and Better Conversations With Aphasia (Beeke et al., 2018; Best et al., 2016) are all designed to improve the quality and enjoyability of interactions between people with and without aphasia by changing the conversational habits of participants without aphasia.

Because of their linguistic processing deficits, PWAs are likely to produce much higher numbers of silent and filled pause turns than speakers without neurogenic injuries (Fromm et al., 2017; Glosser et al., 1988; Leaman & Edmonds, 2019b). This study provides an in-depth analysis of these events. Our aim is to investigate the impact on language production of an interactional approach that prioritizes self-repair over progressivity. We anticipated that providing such time will result in successful self-expression by the PWA much of the time. To investigate this question, we analyzed conversation samples in which the partners allowed ample time for PWAs to self-repair and complete their ideas. We identified and extracted each turn produced by the PWA that contained silent and filled pauses (referred to as "edited turns") and analyzed the language that was produced as a result of the opportunity for the PWA to self-repair without scaffolding. We used three frameworks for analysis that addressed the constructs of form, use, and content identified by Bloom and Lahey (1978) in their influential model of language production. Structural aspects of language, such as phonology and syntax, are regarded as elements of "form," rules for how to engage in interaction and achieve certain functions are element of "use," and semantics (relationships between words' meanings) are regarded as falling within the "content" domain.

Our findings will thus highlight the communicative activities that PWAs are able to engage in when their conversation partners take a less directive approach to trouble sources characterized by silent and filled pauses. Clinicians, researchers, PWAs, their families, and others impacted by aphasia increasingly understand the value of targeting conversation in therapy. Studies such as this one, which focus on the consequences of interlocutor behavior, have the potential to help optimize current and future conversation-based aphasia rehabilitation programs.

Method

The data analyzed in this study were collected during two previous studies that were conducted with the approval of the institutional review board of Teachers College, Columbia University. Analysis of the data for the current work occurred under a secondary use approval by the institutional review board of the University of Kansas Medical Center and a data transfer and use agreement between the two institutions.

Participants

Conversation samples from 10 PWAs were selected from the larger data set of 30 participants involved in the two previous studies that served as the source material for this research. Individuals were selected for the current work if they demonstrated at least five instances of silent or filled pauses lasting at least 2 s in each of two conversations that they had engaged in for the previous research. We selected the 2-s criterion based on research in typical speakers, indicating that less than 1-s pauses cause speakership to change in conversation (Jefferson, 1989). Knowing that PWAs take more time to produce language than typical speakers, aphasiology research has a long history of extending this time to 2 s, a procedure we adopted in the current work (Crockford & Lesser, 1994; Fergadiotis & Wright, 2016; Leaman & Edmonds, 2019a; Pashek & Tompkins, 2002). The participants were recruited through aphasia groups and word of mouth in four northeastern states of the United States. The participants included one person who had very mild aphasia (above the cutoff for aphasia diagnosis on the Western Aphasia Battery–Revised; Kertesz, 2006), three who had mild aphasia, and six who had moderate aphasia (see Table 1 for further differential diagnosis information and for details regarding two participants with concomitant apraxia of speech). All participants had received individual and group aphasia therapy in the past, but none were enrolled in therapy during this study.

Each person held two 15- to 20-min conversations with different partners. Most participants held both conversations with unfamiliar SLP partners (SLP-Ps). For these conversations, the PWAs knew that their partners were SLPs but had also been told that the conversation was not a therapy session. In addition to a conversation with an SLP, P8, P9, and P10 held one conversation with a home partner (Home-P). All dyads were informed that the conversation was meant to be casual and social in nature. Partner types varied because one of the two source studies included both types of partners. The small sample size of conversations with Home-Ps precludes statistical analysis investigating differences between the two dyad types. However, the focus of this study is to investigate the impact of allowing time for self-repair regardless of partner type; thus, these data were included. Raw data from all conversations will be reported to provide readers with comprehensive information at the individual level for

Table 1. Participant and partner assessment, demographic, and conversation data.

ID	Age/Ed/RE	WAB-AQ Type	CLQT+/CLQT	ACOM *t* score	TPO, Y,M	Conversation data: Partner ID/age/time Visit 1	Conversation data: Partner ID/age/time Visit 2 (MoCA for Home-P)
P1	40 Coll/Cau	93.5 Mild Anom	NLC: 41 WNL	62.51	6,9	**A**/37 11′58″	**B**/57 9′25″
P2	42 H.S./CAU	77.2 Mild Cond	NLC: 41 WNL	49.59	3,2‡	**C**/37 11′38″	**D**/40 *14′43″*
P3	45 Coll/Cau	95.7 Min Anom	NLC: 42 WNL	46.61	4,11	**E**/33 10′30″	**F**/26 8′08″
P4	67 Grad/A-A	66.4 Mod TCS	NLC: 27 Mild	48.12	19,4	**G**/62 10′35″	**H**/25 9′54″
P5	67 Coll/Cau	68.0 Mod TCM	NLC: 40 WNL	39.33	2,1	**G**/62 11′58″	**H**/25 *15′34″*
P6˜	47 Grad/Asian	61.0 Mod Cond	NLC: 38 Mod	43.79	5,1	**C**/37 9′08″	**I**/54 8′15″
P7	64 H.S./Cau	58.8 Mod Broca	NLC: 41 WNL	51.55	6,0	**J**/31 *13′15″*	**B**/57 *15′48″*
P8	71 H.S./Cau	75.7 Mod TCM	2.8/4 Mild	41.35	10,4	**C**/34 11′53″	**Sis**/68 11′32″ 29/30
P9	66 Grad/A-A	79.3 Mild Anom Mod AoS	23.6/4 WNL	56.57	3,7	**K**/29 9′45″	**Wife**/61 10′30″ 28/30
P10	63 Grad/Cau	51.0 Mod Broca M/S AoS	–did not complete–		21,5	**L**/28 11′00″	**Hus**/74 11′34″ 29/30

Note. ID = participant identifier; Ed = education level; RE = self-reported race and ethnicity; WAB-AQ = Western Aphasia Battery–Revised, Aphasia Quotient (Kertesz, 2006); CLQT+/CLQT = Cognitive Linguistic Quick Test–Plus (Helm-Estabrooks, 2017) or Cognitive Linguistic Quick Test (Helm-Estabrooks, 2001); ACOM = Aphasia Communication Outcome Measure (Hula et al., 2015); TPO, Y;M = time postonset, years, months; Partner ID = partner alpha-identifiers are speech-language pathologist partners (Sis = sister; Hus = husband); Time = duration of sample in minutes (′) and seconds (″); MoCA = Montréal Cognitive Assessment (Nasreddine et al., 2005); NLC = nonlinguistic cognition score; bold = female; nonbold = male; Coll = college; Cau = Caucasian, not Latino/a; Anom = anomic aphasia; WNL = within normal limits; italics = extended transcription: for P2, because partner told a story for 2′53″ and for P5 and P7, to obtain > 300 words (although for P5, Sample 2 had only 285 words; accordingly, Sample 1 was truncated to 282 words to maintain similar sample sizes); ‡ = reported five left hemisphere strokes; H.S. = high school; CAU = Caucasian, Latino; Cond = conduction; Min = minimal aphasia, WAB score > 93.8; Grad = graduate degree; A-A = African American, not Latino/a; Mod = moderate; TCS = transcortical sensory aphasia; TCM = transcortical motor aphasia; ˜ = first language was Korean until 6 years of age, then immersed in American school; M/S = moderate to severe; AoS = apraxia of speech.

each conversation. The data have not been previously analyzed for edited utterances.

The PWAs and the Home-Ps met the following criteria: (a) between 18 and 80 years old; (b) hearing adequate to pass a 40-dB pure-tone threshold hearing screening at 500, 1000, 2000, and 4000 Hz in at least one ear (aided/unaided); and (c) vision adequate to participate in testing by self-report (aided/unaided). Furthermore, criteria for the PWAs included (d) no self-reported history of language, learning, mental health, or neurological condition other than one or more strokes resulting in aphasia at least 6 months prior to the study; (e) monolingual user of General American English (Fodde, 2013; Wolfram & Schilling-Estes, 1998) or African American Vernacular English; if a history of bilingualism was reported, participants indicated their proficiency in languages other than English using a visual analogue scale adaptation of Muñoz and Marquardt's (2003) 7-point scale bilingualism scale, for each language modality (i.e., speaking, auditory comprehension, reading, and writing). A rating of 1 on this scale indicates not fluent within the specified modality, whereas a rating of 7 indicates native-level fluency. A rating of 3 or lower was required for inclusion in the study; (f) an Aphasia Quotient of ≥ 50 on the Western Aphasia Battery–Revised (Kertesz, 2006); (g) no more than moderate cognitive impairment on the Cognitive Linguistic Quick Test (CLQT; Helm-Estabrooks, 2001) or the CLQT+ (Helm-Estabrooks, 2017); for the Home-Ps, an additional criterion was (h) within normal limits score on the Montréal Cognitive Assessment (Nasreddine et al., 2005).

The 12 SLP-Ps who participated in the conversations volunteered their time and were licensed and

certified to practice in the United States. They all had experience working with PWAs. Their communication and cognitive status was assumed adequate, as they were all professionally employed in either adult medical settings or were engaged in clinical research in an adult neurogenic research lab. The SLP-Ps' years of experience working with PWAs averaged 11.92 years, with a range of 1–36 years (standard deviation [*SD*] = 11.15 years).

Procedure

Session Format

The first author reviewed the informed consent information in writing and verbally with each PWA and a family member or friend if desired. In addition, the Home-Ps for P8, P9, and P10 also completed consent forms, which were reviewed using the same procedures as for the PWAs. All participants, the PWAs, and the Home-Ps had an opportunity to have their questions answered. They each then signed the informed consent form. Each PWA attended two sessions, except P10 who was only able to complete one visit due to unexpected personal circumstances. All of her data were collected at this visit, which occurred in her home. Language sampling was collected prior to testing during the visits for all participants, except for P8 and P9 who completed testing at Visit 1, then collected a conversation sample at home, and then returned to the lab to participate in the conversation with the SLP-P at Visit 2. All data collection occurred within 2 weeks. In addition to the testing required to determine whether the participants met the criteria of the study, each PWA also completed the Aphasia Communication Outcome Measure (ACOM; Hula et al., 2015) with the first author. The only exception was P10, who did not complete the CLQT (Helm-Estabrooks, 2001) or the ACOM (Hula et al., 2015) because of the unforeseen circumstance preventing her second research visit. Participants 1 through 7 also provided narrative monologue samples as a part of their language sample data collection, although those data are not analyzed in this study.

Conversation Sampling

Social conversations were collected from each dyad at Teachers College, except for the conversations involving P9 and P10 and each of their designated Home-Ps, who held their conversations at home. The PWAs and their Home-Ps were informed that a social conversation was desired and that there were no specific expectations or any need to demonstrate particular language skills. They were told that they could use any means of communication desired and that they should have a conversation in a manner typical of their everyday conversations. The dyads who held their conversations at home each borrowed a camera and tripod and were given written and verbal instructions for their use. The PWAs and their Home-Ps knew that casual conversation was of interest but did not have any further details about the specific focus of the study.

Social conversations were also desired with the SLP-Ps, so as to optimize the similarity of the conversations between the PWAs and their Home-Ps and the conversations between the PWAs and their SLP-Ps. However, SLPs are trained to use clinical behaviors such as cueing, suggesting strategies and providing modeling, which they often use in both structured therapy tasks and unstructured conversation (Simmons-Mackie & Damico, 1999) but do not typically occur in everyday conversation between adults. Consequently, training was required for the SLP-Ps to ensure they would not use traditional structured clinical behaviors and would instead maintain a social interaction with the PWA. The first author trained the SLP-Ps to behave as social partners using the Social Conversation Collection Protocol (SCCP), which was developed to promote the social conversations required for this research (Leaman & Edmonds, 2019a, 2021; see Appendixes A and B). Training for each SLP-P took approximately 45 min. The Home-Ps did not receive SCCP training, because we wished to collect data resembling their typical daily home conversations, without influence from the research. Furthermore, although Home-Ps may sometimes use the clinical behaviors described above, they have not usually received the extensive kind of clinical training experienced by the SLP-Ps. Behaviors typical of clinical interactions, such as those described, were seldom used by the Home-Ps and did not occur in any of the data analyzed for this study.

The SLP-Ps were trained to diminish their use of typical clinical behaviors and to instead use behaviors more typical of social interactions such as making comments, telling stories, and using alignment tokens such as saying "mhm" and using head nods to show interest. All communication modalities were permitted, and the SLP-Ps were trained to accept all nonverbal communication without requesting verbal production of communicated information. SLP-Ps did not suggest communication strategies or alternative communication modalities but instead followed the lead of the PWAs. The SCCP training included written information about social and clinical conversations, viewing of video clips of each type of conversation, and follow-up discussions with the first author. The SLP-P who participated in the conversations with P9 verbally confirmed her understanding of the SCCP, whereas the other SLP-Ps completed a seven-item posttraining quiz (see Supplemental Material S1), with each scoring 100%. Protocol fidelity was evaluated with a nine-item checklist of target SLP-P behaviors (see Supplemental Material S2) and was 99.3%. Reliability was conducted by a research assistant (RA) in the first author's lab for 82.3% of the data, and agreement was 100%.

Measures

Form

Aphasiologists have a long-standing and intense interest in neurogenic injury's impact on syntax. Many intervention programs such as the Sentence Production Program for Aphasia (Helm-Estabrooks & Nicholas, 2000), Treating Underlying Forms (Thompson & Shapiro, 2005), Verb Network Strengthening Treatment (Edmonds et al., 2009), and Constraint-Induced Language Therapy (Pulvermüller et al., 2001) seek to engage neuroplasticity and increase linguistic and sentence-level production abilities. When providing sentence-level interventions, clinicians help clients produce and practice progressively longer and more complex syntactic structures.

In keeping with these and other programs, we elected to focus on syntactic complexity as an aspect of Bloom and Lahey's (1978) form component. The lengths of sentences have been found to be highly correlated with their syntactic complexity (Szmrecsanyi, 2004). Accordingly, in order to better understand the complexity of edited turns, we counted the number of words produced during and subsequent to each pause to provide verbal productivity data as a gross indicator of syntax.

Words were counted from the start of the silent or filled pause until the person completed the utterance. The measure was calculated for the total number of words and also for the total words with repeated words subtracted. For example, the following edited turn has four filled pauses marked with curved parentheses. Two of the filled pauses qualified this utterance as an edited turn because they lasted at least 2 s. The start/end time stamps for each are indicated inside the square brackets. Filled pauses without associated time stamps lasted less than 2 s: "So (m*) my my mom (um i*) is a [2:27 (um um) 2:31] ***a professor of*** [2:33 (uh um) 2:35] **a professor of *English.***" Subsequent to the onset of the first qualifying filled pause (at 2:27 time stamp), the utterance contains a total of seven words, indicated by the words in bold font. Of these, four novel words were produced, indicated by the words in bold and italicized font (and three were repetitions of the novel words, i.e., the second iteration of "a professor of"). Another example illustrates an utterance that is initially abandoned and then self-repaired. The duration of each silent pause is marked in curved parentheses: "It's (um) [6:41(:04) {utterance abandoned}/ **Yeah so** (um) 6:49] **Perry is son's cat.**" In this example, "6:41" and "6:49" indicate an 8-s time frame that included a 4-s pause (:04) and an additional 4 s spent producing the filled pause (um) and nonsubstantive discourse markers "yeah/so." The "/" symbol signifies how utterances were segmented for transcription. This edited turn resulted in a six-word utterance with no repetitions, indicated by the bold font.

Content

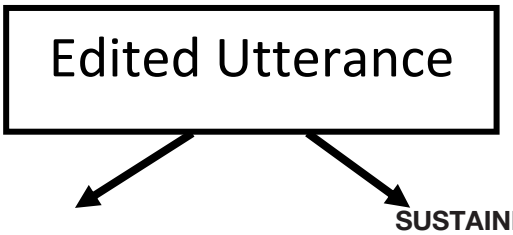
We wanted to shed light on the types of semantic meanings communicated by PWAs during edited turns. We used a personal semantics schema developed by Renoult et al. (2012, 2020) based on the previous work of Tulving (1972) to classify the semantic content of each edited turn. Four categories exist within this taxonomy: "autobiographical facts" describe factual information about the speaker's life history or experience (e.g., "I was born in the Southern Hemisphere"); "general semantic knowledge" describes information regarding states, events, or facts about the world that are unrelated to any one person's life history (e.g., "Washington DC is the capital of the United States of America"); "self-knowledge" describes the speaker's attributes and characteristics (e.g., "I am a big fan of cilantro"); and "repeated events" describe regular activities the speaker participates in (e.g., "I walk my dog everyday"). The language produced subsequent to each edited utterance was categorized per this classification system, and data were then tallied for each category.

Use

We sought to understand the function of edited turns within the context of a given conversation. A number of previous studies of interactions involving people with neurogenic language disability have utilized concepts from systemic functional linguistics to interpret the function of interlocutor's turns (Groenewold & Armstrong, 2018; Mok & Müller, 2014; Müller & Mok, 2012, 2014; Togher et al., 1997). Similarly, our approach here was informed by discourse structure analysis (DSA; Eggins & Slade, 1997), a systemic functional framework that enables researchers to analyze the function of each utterance produced in a conversation. Analysts orient to what conversation partners accomplish in their turns (e.g., introducing new information, asking questions, making statements, and responding to others) to describe the interactions. The full DSA network includes 39 speech functions. However, for the needs of this study, we employed a simplified version of this schema, using only the seven categories as detailed below. Table 2 details the step-by-step process we used for determining classification of each edited turn, and Table 3 contains examples.

Opening moves. Opening moves are used to open a new sequence of talk and provide a novel and distinct concept for interactants to discuss. Opening moves may take the form of statements ("Cilantro tastes terrible"), questions ("How much cilantro should you put in guacamole?"), offers ("Would you like some cilantro?"), or commands ("Let's add some cilantro to the grocery list"). The current data contained no edited turns by PWAs that were offers or commands, so we did not use these classifications. Eggins and Slade (1997) characterize opening moves using the following descriptors: Opening moves have a new subject and a new verb or verb

Table 2. Decision-making tree to differentiate move types in discourse structure analysis.



OPENING MOVE

Must meet 2 out of 3 criteria

- New subject and verb (in relationship to previous move)
- Independent (cannot be expressed as elliptical[a])
- Doesn't start with conjunction

If yes, designate as an opening move
Then, decide whether it is:

- statement or question
- fact or opinion

And then select from these options

- opening: statement of fact
- opening: statement of opinion
- opening: question of fact
- opening: question of opinion

SUSTAINING MOVE

Must meet 2 out of 3 criteria

- New subject or new verb, or neither (in relationship to previous move)
- Dependent (***or*** can be expressed as elliptical[a])
- Starts with a conjunction

If yes, designate as a sustaining move
Then, decide whether it is:

- same speaker
- different speaker
- a response to a question

And then select from these options:

- sustaining: continuing (same speaker)
- sustaining: reacting (different speaker)
- sustaining: responding (response to question)

[a]Elliptical utterances are brief utterances that can only be fully understood in relation to another utterance. For example, if Speaker A asks Speaker B, "What time is it?" and Speaker B answers, "3 p.m.," Speaker B's utterance is elliptical because it is not interpretable without reference to Speaker A's question.

phrase (referred to as the finite), they rarely begin with a conjunction such as "but" or "and," and they are composed of independent clauses that cannot be expressed as elliptical clauses.

A clause is elliptical when the full realization of its meaning is dependent on a prior utterance. In conversation, speakers can and often do use elliptical clauses because they are interpretable in context and reiteration of easily inferred information would be superfluous. For instance, if a speaker states, "I love cilantro" and the partner states, "Me too," this response is elliptical. Although the second speaker has not produced an independent clause, within the context of conversation, it is an expected and usual construction, and stating, "Me too, I love cilantro," is not needed or required, although it is a possible option. For the purpose of distinguishing opening and sustaining moves using the parameter regarding whether an utterance can be expressed as elliptical, this example demonstrates an utterance that is not expressed as elliptical but that could be (i.e., could be expressed as, "Me too"). This status makes it not typical of an opening move but rather typical of a sustaining move (see Tables 2 and 3).

Sustaining moves. Sustaining moves occur following opening moves and continue talk around the same proposition. Sustaining moves may continue one's own talk or may continue the partner's talk. For instance, after saying, "Cilantro tastes terrible," the current speaker might build on this proposition with a *continuing move* such as, "because it's very soapy." Alternatively, if instead the other speaker expands on the proposition, a *reacting move* occurs. Using the same example, after the first speaker produces the opening move, "Cilantro tastes terrible," the other speaker could react by saying, "It's awful." Continuing (same speaker) and reacting moves (other speaker) are both types of sustaining moves (i.e., moves that follow up on the proposition raised in the opening move). A subcategory of the reacting move designation is the *responding move*, used when a speaker responds to (or answers) a question asked by the partner. According to Eggins and Slade (1997), sustaining moves may be described as follows: They may contain a new subject or verb/verb phrase (but not both), they often begin with a conjunction such as "but" or "and"), and they are elliptical or are independent clauses that can be expressed as elliptical clauses (see Tables 2 and 3).

Identifying and classifying move types. Although Eggins and Slade (1997) provided the definitions of opening and sustaining moves as described above, occasionally, their examples and examples coming from the current data had characteristics of both types of move. For instance, it is possible for a turn to contain a new subject and verb (opening move) and to also be initiated by a conjunction such as "but" (sustaining move). Consequently, to further

Table 3. Descriptions and examples of move types in discourse structure analysis.

Move name	Subtype	Discourse function	Structural features	Example
Opening move	Statement of fact	Provides a factual proposition for participants to engage with	a. Typically formulated as a declarative b. Produced with falling intonational contour c. Subject and verb/verb phrase are new and differ from those used in immediately prior utterances d. Composed of independent clauses e. Cannot be formulated as elliptical[a] utterances	**Coriander is produced from the seeds of the cilantro plant.**
	Statement of opinion	Provides an opinion for participants to engage with	Identical structural features to opening move, statements, of fact	**Cilantro makes guacamole taste delicious.**
	Question of fact	Seeks factual information	a. Typically formulated as an interrogative b. Produced with rising intonational contour c. Subject and verb/verb phrase are new and differ from those used in immediately prior utterances d. Composed of independent clauses e. Cannot be formulated as elliptical[a] utterances	**Is cilantro poisonous?**
	Question of opinion	Solicits an opinion	Identical structural features to opening move, question of fact	**Do you think cilantro tastes ok?**
Sustaining move	Continuing move	Expands on proposition offered in opening move	a. Speaker who produced the opening move continues to speak b. Share at least a subject or verb/verb phrases with previous opening move c. Can be formulated as elliptical[a] utterances d. Often begins with a conjunction	Some people don't like cilantro in guacamole **because they think it tastes soapy.**[b]
	Reacting move	Engages with proposition offered in opening move	Identical features with continuing move except reacting moves are produced by the next speaker	*Speaker A:* Cilantro really adds flavor to guacamole *Speaker B:* **Yes, it really does!**
	Responding move	Answers a question posed by an opening move	Identical features with reacting move	*Speaker A:* Would you like some guacamole? *Speaker B:* **Yes, please.**

[a]Elliptical utterances are brief utterances that can only be fully understood in relation to another utterance. For example, if Speaker A asks Speaker B, "What time is it?" and Speaker B answers, "3 p.m.," Speaker B's utterance is elliptical because it is not interpretable without reference to Speaker A's question. [b]Sustaining move written in bold text; preceding opening move provided for clarity in regular text.

operationalize and regularize identification of moves as either opening or sustaining, we analyzed each edited turn for the three dichotomous characteristics that Eggins and Slade used to differentiate opening and sustaining moves, that is, (a) whether the subject + verb/verb phrase contains new or old information, (b) whether the clause is independent or dependent, and (c) whether a conjunction is present or absent at the start of the utterance (see Table 2). Subsequent to this analysis, edited turns were classified to the move category (opening or sustaining) for which they demonstrated at least two of the three characteristics.

Opening moves were then further described as to whether they were questions or statements and whether they contained factual information or opinion. This yielded four types of opening moves as follows: question about facts, question about opinion, statement about facts, and statement about opinion. Likewise, each sustaining move was further described as to whether it was a continuing

move (i.e., produced by the same speaker as the opening move), a reacting move (i.e., produced by the partner in reaction to an opening more), or a responding move (i.e., a response to a clarification request; see Table 2).

Ambiguous Utterances

Sometimes the language produced in an edited turn did not provide adequate information for semantic analysis or DSA (or both). When this occurred, the turn was designated as "ambiguous." However, this assignment did not automatically indicate that no material of value was communicated; just that what was communicated could not be accurately assigned a semantic or DSA category (and sometimes could be assigned neither). These turns often supplied substantive information contributing to the conversation. For example, when talking about football, P2 stated, "It's you [6:12 (um um) I mean (um) 6:29 the] draft." This utterance contributed relevant new information to the conversation regarding the football draft, which had not previously been mentioned. However, he provided insufficient information to allow coding for the semantic and DSA schema. Some of the time ambiguous turns did not contribute to the conversation, especially if were composed solely of filler words such as "anyways," "but then," and "so" or if the person chose to abandon the communicative attempt.

Self-Initiated Repairs That Requested Assistance From Partner

Some edited turns resulted in the PWAs requesting assistance from their partner, which is a type of self-initiated repair strategy. For instance, when asked who his favorite basketball player was, P9 responded, "But (n*) now [28:08 (um whu* uh*) 28:12] what's his name?" These utterances were coded as self-initiated repairs and were not further analyzed using the semantic or DSA taxonomies.

Data Preparation and Reliability: Transcription and Locating Edited Utterances

The first author transcribed each conversation while watching the associated video recording. She used a transcription method developed for conversation in aphasia (Leaman & Edmonds, 2019a) based on the Analysis of Speech unit (Foster et al., 2000). Transcription began with the first new topic of conversation that occurred after at least 2 min of the recorded conversation had elapsed. This procedure was used to allow the participants to become comfortable with being recorded (Goodwin, 1981). The goal was to transcribe approximately 10 min of each conversation and at least 300 words. A 2-min leeway deviating from 10 min was allowed so that no transcription abruptly ended in the middle of an ongoing topic of conversation. In addition, for fluent speakers who produced a large volume of verbal language, transcription could end after the 8-min mark had been reached. Additional transcription was required for four conversations to obtain at least 300 words (see Table 1; P2, P5, and P7). Transcription reliability was conducted for at least 30% of each transcript by speech-language pathology graduate students trained as RAs by the first author. Training included written instructions, review of already transcribed conversations, practice, and discussion and feedback with the first author. Point-to-point agreement averaged 91.0% (range for all 20 transcripts: 80.0%–95.7%).

Edited turns were defined as any utterance spoken by the PWAs that contained a silent pause, filled pause, or a combination of the two that lasted at least 2 s. Occasionally, speakers would include repeated word(s) or empty language within the disruption that did not add substantive information to the utterance. This language was calculated as a part of the filled pauses. Each edited turn was timed from the end of the final word before the silent or filled pause until the start of the first new substantive word produced. The first author located each silent and filled pause with use of the timer embedded in the MP4 video recordings. This timer displays elapsed time to the second, but not millisecond, which met the needs of this study. To ensure that no silent or filled pauses shorter than 2 s were included in the data, the first author identified only those silent and filled pauses that the timer indicated were at least this long (e.g., pause had to last from 2 min 4 s to 2 min 6 s). After locating all silent and filled pauses, the first author reviewed her work 2 times, adding and adjusting times as needed. After this process, reliability of the data was conducted by an RA who reviewed 100% of all of the video and transcribed data with the annotated silent and filled pauses. She confirmed 100% of the first author's silent and filled pause identifications and durations for every sample.

Coding Procedures and Reliability

The second author developed a coding manual for the semantic and DSA measures based on the relevant literature (i.e., semantic analysis [Renoult et al., 2012, 2020; Tulving, 1972] and DSA [Eggins & Slade, 1997]). The coding procedures were finalized using a reiterative process of applying the measures to 20% of the data, followed by discussion between the authors. Verbal productivity was calculated by two RAs who counted the words in the edited turns that were produced after the first silent or filled pause.

Coding reliability was conducted by the two authors on 20% of the data (four of 20 transcripts), with the first author randomly selecting two samples from fluent participants, both of whom had mild aphasia, and two samples from nonfluent participants, both of whom had moderate aphasia. These samples reflected the diversity of the participants in the sample for aphasia type and severity. No portion of the data used for reliability had been previously

discussed by the two authors. Agreement was 82.1% (55/67) for the semantic measures and 84.4% (146/173) for the DSA measures. Discrepancies were resolved through reference to the coding manual and collaborative review between the authors. The authors double-checked the word count data calculated by the RA for the verbal productivity measure for 100% of the data.

Results

Raw data from each conversation are reported in Table 4. The 20 conversations consist 2,252 turns produced by the PWAs (average per conversation = 112.6, range: 46–206, *SD* = 41.0). Of these, 13.8% (311/2,252) were edited turns (average per conversation = 15.55, range: 5–29, *SD* = 6.78). Occasionally, multiple silent or filled pauses occurred per turn, resulting in 389 silent or filled pauses in the 311 edited turns (number of silent/filled pauses per edited turn = 1.25, range: 1–5, *SD* = 0.62). Across all conversations, silent and filled pauses accounted for 1,649 s (27 min 29 s), with an average silent or filled pause lasting 5.30 s per edited turn (range: 2–34 s, *SD* = 4.09 s). A range of topics was discussed, including family, travel, housing, illness, pets, entertainment, school, and celebrations, consistent with the literature involving topics discussed in people with and without aphasia and in first meetings (Davidson et al., 2003; Kennedy, 2000; Law et al., 2018; Leaman et al., 2022; Leaman & Edmonds, 2020). Of note, three conversations occurred in PWA–Home-P dyads, whereas the rest occurred in PWA–SLP-P dyads.

Form: Verbal productivity: Language production following the first silent or filled pause in an edited turn resulted in production of 1,902 words for the total sample. Of these, 269 were immediately repeated words (14.14%), and 1,633 were novel words (85.86%). For example, when talking about his former employer, P7 stated, "[8:13] Uh [8:16] **president *president*** (uh) **Hal Stubman,**" resulting in four words, three of which were novel. The mean number of novel words produced per edited utterance was 3.72 (range: 1–18 words, *SD* = 2.91 words).

Repair consisting of a gesture only, not codable for language: 0.30% (1/311).

Self-initiated repairs that requested assistance from partner: 10.3% (32/311).

Content: Semantic categories: general semantic knowledge, 21.9% (68/311); autobiographical fact, 42.4% (132/311); self-knowledge, 9.7% (30/311); repeated events, 1.9% (6/311); ambiguous, 12.5% (39/311); commands, not codable for semantic information in the Renoult et al. paradigm (Renoult et al., 2012, 2020), 0.60% (2/311); interjection/filler, "oh gosh" not codable, 0.30% (1/311).

Use: DSA categories: Opening moves: opening: statement of fact, 32.2% (100/311); opening: statement of opinion, 5.5% (17/311); opening: question of fact, 1.6% (5/311); opening: question of opinion, 0.0% (0/311). *Sustaining moves:* Sustaining: reacting move, 13.2% (41/311); sustaining: continuing move, 23.5% (73/311); sustaining: responding move, 2.4% (7/311). *Ambiguous:* 10.6% (33/311).

Discussion

Much of the research and clinical literature on conversations between people with and without aphasia conceptualizes progressivity privileging modes of interaction as being beneficial for PWAs. Although we agree that in many interactions progressivity may be desired, the literature has not focused on the potential communicative gains possible if instead the communication partner makes the choice to promote self-repair for the PWAs over conversational progressivity. In conversation, adults typically experience and desire agency over producing both self-repair of trouble sources and achieving conversational progressivity. However, in many instances, the nature of aphasia makes both conversational progressivity and self-repair quite challenging. Thus, a therapeutic interactional paradigm that consistently favors progressivity over self-repair may limit the potential communicative gains that would be afforded if instead self-repair were favored over progressivity. To investigate this question, in this study we examined the impact of a communication style that prioritized self-repair over progressivity. The conversation partners in this study did not immediately provide input to drive the process of repair. Instead, they allowed the PWAs time to complete self-repairs. The SLP-Ps were trained to interact according to the SCCP, which shifts the orientation away from progressivity, allows time for self-repair, and uses a style of communication typical between adults without communication disorders, in which partners do not cue or direct one another as to how to communicate.

Our specific focus was on PWA trouble source turns that featured silent and filled pauses that the PWA was given time to self-repair by communication partners who used a nondirective approach during these turns. We analyzed each edited turn using three lenses suggested by Bloom and Lahey (1978): form, content, and use framework. The data revealed that in this non–time-pressured communicative environment, PWAs engaged in complex and multifaceted communicative actions.

When orienting to form, we found that allowing the PWAs to edit their paused turns yielded an average of 3.72 words (*SD* = 2.91 words), with a range of 1–18 words. Given the rules of English grammar, many (if not most) three- to four-word utterances are likely to be composed of phrases or segments in which one element serves as the phrasal head and governs the other elements (Radford, 2004), as seen in the examples we have reported. Although we did not examine types of grammatical structures, the

Table 4. Distribution of semantic and pragmatic (DSA) codes for each conversation.

ID	Type and severity of aphasia WAB-AQ	No. of edited utterances	Avg. seconds per edited utterance	Semantic coding: No. of occurrences / Proportion of each person's data							Pragmatic coding (DSA): No. of occurrences / Proportion of each person's data								
									CBA										
				GS	AF	SK	RE	AM	CO	IJ	OSF	OSO	OQF	OQO	RC	CT	RP	CO	AM
P1.SLPa	Mild anomia 93.5	22	7.45	8	12	0	0	1	0	0	5	0	1	0	5	9	0	0	1
				.36	.55	0	0	.05	0	0	.23	0	.05	0	.23	.41	0	0	.05
P1.SLPb		19	6.00	8	10	0	0	1	0	0	10	1	0	0	1	6	0	0	1
				.44	.56	0	0	.06	0	0	.56	.06	0	0	.06	.33	0	0	.06
P2.SLPa	Mild Conduct 77.2	27	4.48	6	9	2	0	6	0	0	9	0	0	0	3	6	2	0	3
				.22	.33	.07	0	.22	0	0	.33	0	0	0	.11	.22	.07	0	.11
P2.SLPb		29	4.28	3	15	3	1	2	0	0	9	5	0	0	1	6	1	0	2
				.10	.52	.10	.03	.07	0	0	.31	.17	0	0	.03	.21	.03	0	.07
P3.SLPa	Minimal 95.7	5	5.40	0	4	1	0	0	0	0	2	0	1	0	0	2	0	0	0
				0	.80	.20	0	0	0	0	.40	0	.20	0	0	.40	0	0	0
P3.SLPb		13	3.31	2	7	1	0	1	1	0	4	3	0	0	2	1	0	1	1
				.15	.54	.08	0	.08	.08	0	.31	.23	0	0	.15	.08	0	.08	.08
P4.SLPa	Mod TCS 66.4	16	4.69	1	10	5	0	0	0	0	6	2	0	0	3	5	0	0	0
				.06	.63	.31	0	0	0	0	.38	.13	0	0	.19	.31	0	0	0
P4.SLPb		23	5.09	4	3	8	0	2	0	0	8	2	1	0	2	1	3	0	0
				.17	.13	.35	0	.09	0	0	.35	.09	.04	0	.09	.04	.13	0	0
P5.SLPa	Mod TCM 68.0	19	5.11	2	11	1	1	4	0	0	6	0	0	0	3	6	0	0	4
				.11	.58	.05	.05	.21	0	0	.32	0	0	0	.16	.32	0	0	.21
P5.SLPb		18	5.56	5	8	0	0	4	0	0	6	1	0	0	3	6	0	0	1
				.28	.44	0	0	.22	0	0	.33	.06	0	0	.17	.33	0	0	.06
P6.SLPa	Mod Conduct 61.0	7	3.00	1	5	0	0	1	0	0	3	1	0	0	0	2	0	0	1
				.14	.71	0	0	.14	0	0	.43	.14	0	0	0	.29	0	0	.14
P6.SLPb		6	4.50	0	2	1	0	0	0	0	2	0	0	0	1	0	0	0	0
				0	.33	.17	0	0	0	0	.33	0	0	0	.17	0	0	0	0
P7.SLPa	Mod Broca 58.8	15	5.27	1	10	0	2	0	0	0	8	0	0	0	4	0	0	0	2
				.07	.67	0	.13	0	0	0	.53	0	0	0	.27	0	0	0	.13
P7.SLPb		18	6.06	5	7	0	1	1	0	0	8	0	0	0	3	2	0	0	1
				.28	.39	0	.06	.06	0	0	.44	0	0	0	.17	.11	0	0	.6
P8.H	Mod Broca 75.7	12	2.83	0	3	1	0	2	1	1	1	0	1	0	2	0	1	1	2
				0	.25	.08	0	.17	.08	.08	.08	0	.08	0	.17	0	.08	.08	.17
P8.SLPa		13	3.46	0	4	0	0	4	0	0	1	0	0	0	1	2	0	0	4
				0	.31	0	0	.31	0	0	.08	0	0	0	.08	.15	0	0	.31
P9.H	Mild anomia 79.3	15	5.4	9	0	5	0	0	0	0	7	1	0	0	0	6	0	0	0
				.60	0	.33	0	0	0	0	.47	.07	0	0	0	.40	0	0	0

(*table continues*)

Table 4. *(Continued).*

ID	Type and severity of aphasia WAB-AQ	No. of edited utterances	Avg. seconds per edited utterance	Semantic coding: No. of occurrences / Proportion of each person's data							Pragmatic coding (DSA): No. of occurrences / Proportion of each person's data								
									CBA										
				GS	AF	SK	RE	AM	CO	IJ	OSF	OSO	OQF	OQO	RC	CT	RP	CO	AM
P9.SLPa		20	7.7	12	4	2	0	0	0	0	2	0	1	0	6	9	0	0	0
				.60	.20	.10	0	0	0	0	.10	0	.05	0	.30	.45	0	0	0
P10.H	Mod Broca 51.0	6	3.83	0	4	0	0	2	0	0	1	0	0	0	1	2	0	0	2
				0	.80	0	0	.40	0	0	.20	0	0	0	.20	.40	0	0	.40
P10.SLPa		14	6.71	0	4	0	1	8	0	0	2	1	0	0	0	2	0	0	8
				0	.29	0	.07	.57	0	0	.14	.07	0	0	0	.14	0	0	.57

Note. DSA = discourse structure analysis (Eggins & Slade, 1997); CBA = cannot be analyzed, commands and interjections are not analyzed by the semantic coding schema developed by Renoult et al. (2012, 2020); ID = participant identifier; WAB-AQ = Western Aphasia Battery–Revised Aphasia Quotient (Kertesz, 2006); Avg. = average; GS = general semantics; AF = autobiographical facts; SK = self-knowledge; RE = repeated events; AM = ambiguous; CO = commands; IJ = interjections; OSF = opening statement of fact; OSO = opening statement of opinion; OQF = opening question of fact; OQO = opening question of opinion; RC = reacting move; CT = continuing move; RP = responding move; SLPa = first conversation with a speech-language pathologist; SLPb = second conversation with a different speech-language pathologist; Conduct = conduction aphasia; Mod = moderate impairment; TCS = transcortical sensory aphasia; TCM = transcortical motor aphasia; bold font, .H = conversation with home partner.

lengths of edited turns in the conversations suggest that at least some of the PWAs produced coordinating phrasal heads and their arguments.

A number of treatments for aphasia aim to improve communication by requiring PWAs to practice three to four word structures. For instance, in Verb Network Strengthening Treatment (Edmonds et al., 2009), the PWA retrieves multiple agent/patient pairs for trained verbs that are provided by the clinician. For instance, if the SLP provides the verb "bake," the PWA may generate the patient "pastry chef" and the agent "cake" to produce "pastry chef bake cake." In another treatment, the Treating Underlying Forms program, an important component is having the PWA produce subject–verb–object sentences (Thompson & Shapiro, 2005). When delivering Response Elaboration Treatment, clinicians may encourage PWAs to produce three-word utterances (e.g., "Hit head crying"; Kearns, 1985).

The cited (and similar) interventions promote recovery from neurogenic injury by providing clients with opportunities to generate and/or practice language production at a sentence level. The similarities in length and structure that exist between sentences generated in the above approaches and the edited turns in our samples suggest that PWAs may be provided with opportunities for practicing phrase- and sentence-level processing during interactions guided by SCCP principles that emphasize self-repair over progressivity. Some of the beneficial practice effects associated with sentence-level aphasia interventions may thus also accrue to PWAs who regularly interact in conversation with conversation partners trained to support self-repair by the PWAs.

We tentatively hypothesize that the quality of practice that occurs within conversational tasks have potential to be at least as effective as that associated with nonconversationally based interventions. Research on human learning indicates that if therapy tasks are salient, relevant, specific, and complex, they will promote neuroplasticity in our clients (Hengst et al., 2019; Kiran & Thompson, 2019; Kleim & Jones, 2008; Nahum et al., 2013). Conversations, especially those in which the partner without aphasia gives the PWA time to carry out self-repairs and complete edited utterances, can be seen as activities featuring many of these factors known to drive positive neural and functional changes related to communication. Moreover, since the context of practice (a social conversation in the clinic room) strongly resembles the context of real-world use (social conversations outside of the clinic room), an intervention built around the SCCP or similar frameworks may produce results that readily generalize to domestic, occupational, recreational, and community settings in which clients need and want to communicate.

In-depth investigation of the type and number of syntactic structures present in edited turns is needed before protocols such as the SCCP are included in therapy programs that target phrase and sentence production. Nonetheless, we believe our results indicate that the interactional patterns encouraged by the SCCP may contribute to fostering the redevelopment of grammatical processing abilities. Further study of this promising framework is warranted.

Our examination of the content of edited turns revealed that the preponderance of ideas communicated were classified as "autobiographical facts" per Renoult et al.'s (2012, 2020) taxonomy. The edited turns thus tended to feature information about the speakers and their life experiences. This finding aligns with previous work on conversation as a site for constructing relationships (Damico et al., 1999; Goodwin, 2007; Schegloff, 2006). When interacting with one another, participants (re)constitute bonds with one another (Sherman et al., 2013). Information about a participant's autobiography is highly relevant to this process.

Relationship building is especially noticeable when two strangers are meeting one another for the first time, as was the case with the dyads that we recorded. In "first meeting" contexts, interactants spend most of the conversation "getting to know one another" by talking about themselves and asking questions about possible connections they may share with interlocutors (Maynard & Zimmerman, 1984). In this setting, turns used to communicate autobiographical facts tend to be common. In first encounters, interactants may not yet feel comfortable enough with one another to foreground their opinions or information about their personal traits. Accordingly, "self-knowledge" content tends to be lower in these interactions. Our data, which demonstrated that 10% of turns were classified as "self-knowledge," are consistent with this literature.

Identity construction is another process that has been linked to conversation. Participation in everyday interactions with others is one activity that helps to define and maintain our sense of self (Eggins & Slade, 1997; Malone, 2013; McInnes & Corlett, 2012). By talking to others about ourselves, we project and reinforce ideas about who we are and how we conceptualize ourselves (Benwell & Stokoe, 2006). The ability to discuss one's personal history plays a key role in the process of discursive identity formation.

Within aphasiology, neurogenic communication disability has been conceptualized as a form of identity theft (Shadden, 2005). PWAs report that their sense of self changes drastically after the onset of their disability (Brumfitt, 1993; Hinckley, 2006). Common themes within the relevant literature describe how PWAs lose their self-concepts as competent, independent adults (Brumfitt, 1993; Hinckley, 2006; Shadden, 2005). The mechanisms driving loss of identity in aphasia are complex, but regular participation in interactions where PWAs are denied opportunities to formulate how they wish to share personal information in their own words may exacerbate the deterioration of a positive sense of self. Although further research is needed

before strong claims can be made, participating in interactions that emphasize self-repair over progressivity, which enable PWAs to communicate autobiographical facts, may foster growth of a more agentive, affirming identity.

The third component of Bloom and Lahey's (1978) model is "use." Here, we used a simplified form of DSA to determine the function (labeled "moves") of each edited turn in our samples. Our analysis revealed that approximately 39% of edited turns enacted sustaining moves, 43% enacted opening moves, and about 11%–12% were too ambiguous to be accurately classified.

Within conversations, opening moves provide propositions for participants to negotiate. Because they introduce content into a discussion, speakers who make opening moves exercise a degree of control over events and topics in conversation. In situations where a single speaker makes the plurality or majority of opening moves, analysts might describe the given speaker as a highly active participant (Eggins & Slade, 1997; Groenewold & Armstrong, 2018; Sim et al., 2013). Conversely, sustaining moves always follow up to opening moves. Because they are speaking in reaction to opening moves, speakers who make sustaining moves can be viewed as exercising less control over the interaction. If a speaker in a conversation make mostly or only sustaining moves, they might be viewed as a passive participant (Eggins & Slade, 1997). In our data, 39% of the edited turns were classified as enacting opening moves. This suggests that PWAs may use a large proportion of edited turns to introduce new content into conversations. These turns thus appear to play a significant role in enabling the PWAs to exercise some agency over what is talked about in conversation.

In this study, interlocutors allowed PWAs to resolve difficulties and carry out repairs on their own turns at talk. In other situations, PWAs may interact with conversation partners who do not wait for the PWA to complete turns featuring filled and silent pauses or who interrupt edited turns (Croteau & Le Dorze, 2006; Croteau et al., 2004; Purves, 2009; Simmons-Mackie et al., 2005). In some cases, interlocutors may intervene, effectively coconstructing a turn or series of turns that may or may not reflect the PWA's original intention. From a discourse perspective, partner behaviors such as these may be depriving PWAs of opportunities to enact opening moves. Consequently, PWAs may fail to share control over the interactional agenda and the topics covered in a conversation may not be those that the PWA wants to actually talk about. Authors have pointed out that PWAs may be reduced to passive participants in interactions (Whitworth, 2003). Our results suggest that partners who routinely take a directive approach to paused turns may be (inadvertently) subverting PWAs' attempts to take a more active stance in conversation.

Overall, our results suggest that PWAs engage in a range of complex communicative behaviors when completing edited turns. Turns of this sort may be seen as loci at which PWAs practice sentence processing, as vehicles for communicating information about their life histories, and as points at which PWAs exercise some control over the unfolding discourse.

Limitations and Future Research

One limitation of this study is that we focused exclusively on casual conversation. This genre of interaction tends to occur in contexts where less time pressure exists and where none of the participants begin the interactions with a clear goal or sense of the "business at hand." Implementing the elements of the SCCP and supporting all PWAs' efforts to conduct self-repair may not be feasible in all circumstances. In more instrumental interactions (such as when a PWA meets with a health care worker) where interactants have less time to talk, more directive methods of dealing with trouble sources (such as those described within the Supported Conversation for Aphasia approach; Jensen et al., 2015; Kagan, 1999; Simmons-Mackie, 1998) may be necessary. Similarly, when facilitating conversation groups for PWAs, clinicians and volunteers have to monitor and manage a wide range of aspects of interaction including mutual intersubjectivity (Archer et al., 2019), turn distribution across members (Archer et al., 2020), and topic sustainability (Archer et al., 2018). Orienting to a single group member and affording them a significant amount of time to resolve a paused turn may not be feasible when a facilitator has to balance a large number of imperatives against one another.

In addition, this study focused on analysis of verbal language produced subsequent to edited utterances but did not investigate nonverbal communication that occurred. A cursory analysis was completed, demonstrating that verbal productions were often accompanied by nonverbal (mostly gestural) communication. However, no self-repairs in this data set consisted solely of nonverbal communication. Future research is warranted to more fully detail the type and nature of nonverbal communication that occurred in conjunction with the verbal self-repairs observed in this study.

Lastly, this study included only monolingual English-speaking participants with mild-to-moderate aphasia. Additional research is needed to investigate the impact of self-repair in the language produced by people with severe aphasia. As preliminary evidence that similar findings may occur for this subgroup of PWAs, it should be noted that P10's aphasia severity was at the border of moderate and severe aphasia (i.e., Western Aphasia Battery–Revised Aphasia Quotient of 51.0, with scores of < 50.0 considered as severe aphasia). Furthermore, findings in this study cannot be extrapolated to multilingual speakers or to people who speak a language other than English. Thus, a need for additional research in these groups is needed.

Conclusions

Our analysis indicates that a supportive, engaged, patient, and relaxed approach to supporting the PWA's self-expression during edited turns is valuable since it empowers PWAs to express themselves, thus providing them with opportunities to play a more active and meaningful role in conversation. The results demonstrated that affording PWAs the time to complete edited turns resulted in opportunities for them to compose syntactic structures; enabled them to use language to share personal information that contributes to work needed for maintaining, negotiating, and building identity and relationships; and allowed them with a measure of control over introducing new topics and directing the conversation.

Different contexts may require different communication partner orientations to trouble sources. If the "point" of an encounter is to obtain as much factual information from a PWA in as little time as possible or if the encounter is a group intervention where competing needs of multiple individuals must be considered, common collaborative repair sequences (e.g., Supported Conversation for Aphasia; Kagan, 1999), in which the partner without aphasia plays a large role, are often needed and quite beneficial. However, in more casual settings, where the interactional agenda is on the development and maintenance of social relationships, less directive, more time-intensive techniques for dealing with trouble sources may align better with the goals and features of this particular genre of interaction. Furthermore, when the desired outcome of intervention is the increased ability to more actively contribute to everyday social conversations, 1:1 treatment that includes ample time for self-repair using a protocol such as the SCCP may provide PWAs with beneficial opportunities to experience the language production and interactional benefits of self-expression. We believe that both approaches are important in contributing to substantial yet potentially different kinds of communicative gains for PWAs in conversation-focused interventions. However, we suggest that the pendulum has perhaps swung too far toward valuing progressivity and offer preliminary research highlighting the benefits of self-repair.

We advocate for the field to evolve toward greater understanding of the impact clinicians have when they make interactional choices to choose progressivity over self-repair and when they choose self-repair over progressivity. We believe this will contribute to the ability to better optimize intentional decision making regarding these choices and to provide a better balance between these approaches to best fit the needs of each individual with aphasia. This study will hopefully serve as a stimulus for further research and discussion between clinicians, researchers, PWAs, and families on the importance, benefits, and limitations of varying approaches to progressivity and repair in conversations between people with and without aphasia.

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Appendix A

Social Conversation Collection Protocol: Setting the Context for a Casual Conversation

Component	Description
Casual conversation	Let the participants know ahead of the conversation that: ■ a social, casual-type, everyday conversation is desired ■ there is no topic or agenda for the conversation ■ no topic is provided; topics can shift as they do in everyday conversation ■ either partner can start the conversation
Time	15–20 min; analyze a middle section about 10 min long
Partner	SLP or a family or friend ("home partner")
Space	A casual, comfortable space; if testing is being conducted, use separate spaces for testing and the conversation (if possible)
Training for SLP	Do/don't list below Readings on conversational environment, interactions, and types of conversation[a] Utterance-by-utterance decision-making flow sheet, Appendix B
SLP and home partner protocols	
Home partner	Instructions to partner and PWA: We'd like to get an idea of what typical, everyday conversations are like at home: ■ Please video-record a conversation for 15–20 min on any topic(s) ■ Neither partner needs to do anything special ■ We aren't looking for the PWA to demonstrate any particular language skills or knowledge ■ Partners can use speech, gestures, writing, or drawing (have paper/pen available)
SLP partner	Minimize clinical feel of the conversation and maximize the casual feel with these techniques: *Do:* ■ Show interest with ■ eye contact ■ body language ■ nodding, saying "mhm" ■ Make comments ■ Share stories about yourself ■ Allow topic to shift naturally ■ Give plenty of time ■ Silence is ok ■ Be receptive to and accept all communication modalities ■ If you don't understand, say so ■ Paraphrase what you do understand *Don't* ■ Ask lots of questions ■ No phonemic or semantic cueing ■ Request correct verbal words or better production if you understand ■ Don't request verbal production of ideas that are communicated nonverbally ■ Request person to tell you something you already know ■ Act like an interviewer (if you notice it feels like an interview, try making comments and/or tell a story about yourself) ■ Tell or instruct the person regarding strategies or how to communicate

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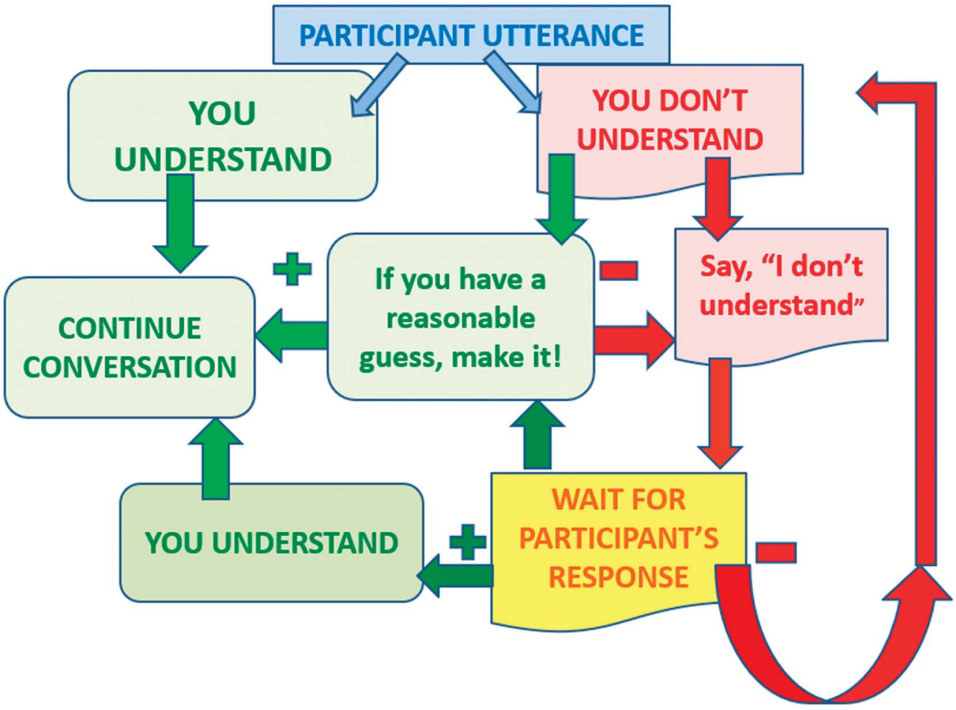
[a]Readings: Excerpts were used from Hengst and Duff (2007), Hengst et al. (2019), and Simmons-Mackie and Damico (1999, 2008). SLP = speech-language pathologist; PWA = person with aphasia.

Appendix B

Social Conversation Collection Protocol: Utterance-by-Utterance Decision Making



1. Participant says something.
2. If partner understands, follow pathway to the left and continue conversation.
3. If partner doesn't understand, follow pathway to the right.
   a. If partner has a guess, follow pathway to the center.
      i. If guess was correct, follow pathway to the left and continue conversation.
      ii. If guess was wrong, go to 3b.
   b. If partner needs clarification, say, "I don't understand."[a]
      i. Wait for response; provide as much time as the person with aphasia needs.
      - If partner understands, follow pathway to the left and continue conversation.
      - If partner doesn't understand, say, "I don't understand,"[a] and return to 3b.
      - Procedure cycles up to 3 times if needed.
   c. If partner still doesn't understand after three cycles, partner can use therapy techniques such as suggesting a strategy, giving choices, etc., or partners may decide to let it go/move on.

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[a]Partner says, "I don't understand," "I didn't get that," "Can you tell me again?" or a comparable request to have the utterance stated again; partner's request is not scripted, partner does not assist or instruct participant (unless requested to do so), strategies are not suggested; participant can use any and all communication modalities desired, and partner accepts all modalities and does not request a verbal production if the nonverbal is understood.