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Ryan S. Husak, Student

Dr. Robert Marshall, Major Professor

Dr. Esther Dupont-Versteegden, Director of Graduate Studies

JOINT DECISION-MAKING IN MARRIED COUPLES AFFECTED BY APHASIA

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DISSERTATION

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A dissertation submitted in partial fulfillment  
of the requirements for  
the degree of Doctor of Philosophy in the  
College of Health Sciences  
at the University of Kentucky

By

Ryan Scott Husak

Lexington, Kentucky

Co-Director: Dr. Robert Marshall, Professor of Communication Sciences and Disorders  
and Dr. Patrick Kitzman, Professor of Physical Therapy

Lexington, Kentucky

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## ABSTRACT OF DISSERTATION

### JOINT DECISION-MAKING IN MARRIED COUPLES AFFECTED BY APHASIA

*Background:* Aphasia is an acquired language disorder, usually due to stroke, that affects the social functioning and the quality of life of the person with aphasia as well as the quality of life of his or her family and caregivers. Traditional aphasia therapy has tended to focus on decontextualized tasks and discrete elements of language functioning. The Life Participation Approach to Aphasia (LPAA) focuses on the collaborative nature of communication and addresses communication within personally relevant contexts. Joint decision-making is one type of social interaction that occurs frequently between married couples and has received considerable attention in the literature. To date, no study has investigated how married couples affected by aphasia collaboratively make decisions.

*Aim:* The present study aims to provide foundational information on joint decision-making by married couples affected by aphasia.

*Methods and Procedures:* Fourteen married couples in which one of the spouses had aphasia volunteered to participate in the study. A variety of assessment measures were administered to the participants with aphasia to characterize their speech and language deficits and all participants were administered a non-verbal reasoning test and a marital quality scale. The primary task of interest in this study involved a joint decision-making activity in which spouses were read two hypothetical 'survival-type' scenarios and were given a list of items for each scenario. The spouses were instructed to decide on six items and then rank their selected items in order of importance in terms of their value in helping them survive the scenarios. Participants' interactions were audio- and video-recorded, and their verbal communication transcribed verbatim. The participants' communicative interactions were coded for speech functions and analyzed by comparing differences in communication behaviors between the spouses with and without aphasia.

*Results:* Findings showed that participants with and without aphasia utilized a variety of speech functions but that the participants with aphasia made far fewer attempts to persuade their spouse to agree with them and that the spouses without aphasia tended

to dominate the interaction, resulting in an imbalance of power in the decision-making process. Despite the differences in communication behaviors, both groups of spouses were supportive of the ideas suggested by their significant other and conflicts were typically resolved quickly.

*Conclusion:* Findings from this study revealed potential discrepancies in the balance of power between the spouses with and without aphasia in decision-making communication. Suggestions are provided for tailoring interventions and guiding future research in joint decision-making in couples affected by aphasia.

**KEYWORDS:** aphasia, joint decision-making, marital communication, speech functions, life participation approach to aphasia (LPAA)

Ryan Scott Husak

April 17, 2018  
Date

JOINT DECISION-MAKING IN MARRIED COUPLES AFFECTED BY APHASIA

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TO MY FAMILY

For your unconditional love and encouragement  
For showing me care and how to care  
For believing in me  
For giving me the freedom to explore my own curiosities  
Without you,  
I would never have found the happiness I have today  
This dissertation is gratefully dedicated to you  
I love you

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## Chapter One

### Introduction

Aphasia is an acquired disorder of the language modalities that affects a “person’s communicative and social functioning, quality of life, and the quality of life of his or her relatives and caregivers” (Papathanasiou, Coppens, & Potagas, 2012, p. xx). Stroke, or cerebrovascular accident (CVA), is by far the most prevalent cause of aphasia (Hallowell & Chapey, 2008). Approximately 35% of stroke survivors develop aphasia (Pedersen, Stig Jørgensen, Nakayama, Raaschou, & Olsen, 1995). Some individuals recover a significant amount of their language abilities within the first year (Kauhanen et al., 2000; Pedersen et al., 1995) but for many stroke survivors, aphasia becomes a chronic disorder. According to the National Aphasia Association, approximately 180,000 Americans develop aphasia each year and about 2 million people living in the United States (about 1 in every 160 residents) currently have aphasia.

#### *Statement of the Problem*

When severity of aphasia has been measured using overall test scores from standardized aphasia tests batteries, such as the *Porch Index of Communicative Ability* (PICA; Porch, 1967) or the *Western Aphasia Battery* (WAB; Kertesz, 1982), aphasia severity ranges from very mild to severely profound. Some clinicians and researchers, however, have suggested that test scores do not always provide an accurate representation of the functional communication abilities of a person with aphasia to communicate in real life contexts (Davis & Wilcox, 1985; Frattali, 1992; Holland, 1977; Kagan & Gailey, 1993; Lyon, 1992). For example, a person with mild aphasia in a non-supportive environment may experience greater daily problems than another person with severe



aphasia who is highly supported (Chapey et al., 2008). In the early 1990s, the emphasis on functional communication gave rise to the Life Participation Approach to Aphasia (LPAA; Chapey et al., 2008). LPAA is not a specific method for treating aphasia, but a consumer-driven service delivery approach that supports persons with aphasia and others affected by aphasia in living successfully with the disorder (Holland & Goldberg, 2007; Simmons-Mackie, 2008).

A basic premise of LPAA is that the person with aphasia functions within a larger social network that includes not only family, but the community, and a larger society. Much research in use of LPAA has focused on providing opportunities for communication, and supporting communication efforts of people with aphasia in these spheres. Largely this has been done by training family members, service providers, and other caregivers to serve as conversational partners for persons with aphasia and examining the effects of this training on the communication behavior of the person with aphasia and the skills developed by the trained partner in facilitating conversation (Simmons-Mackie, Raymer, Armstrong, Holland, & Cherney, 2010; Simmons-Mackie, Raymer, & Cherney, 2016). For the most part, this partner training research (to be reviewed in Chapter 2) has targeted spouses of persons with aphasia for training and focused the training on promoting the use of conversation between the person with aphasia and the partner. However, there is limited available research on assessing or treating conversations between individuals with aphasia and their partners in specific conversational contexts.

The present study seeks to provide foundational information on collaborative decision-making by married couples affected by aphasia. Collaborative decision-making

is one type of communication that occurs frequently between married couples, demands high-level cognitive communication skills, and has received considerable attention in the cognitive aging literature (Strough & Margrett, 2002). Investigators have found that joint collaboration between older married couples helps maintain functioning despite age-related decline in abilities (Dixon & Gould, 1996) and strengthens marital relationships (Berg, Johnson, Meegan, & Strough, 2003). The decision to investigate collaborative decision-making in married couples affected by aphasia was based on three observations. First, most stroke survivors with aphasia who return home do so because they are married and have a spouse to care for them (Nguyen, Page, Aggarwal, & Henke, 2007). Second, inclusion of the person with aphasia in decision making that affect his/her life is an important part of LPAA. To date, the author is unaware of any empirical studies that have investigated how married couples affected by aphasia negotiate and jointly make decisions. Third, foundational information on how married couples affected by aphasia make collaborative decisions can be used to guide the development of partner training schemes to facilitate the process for individuals at all levels of severity. Data collected from this study will help guide future research and tailor interventions for addressing a critical sequela of stroke.

### *Study Aims*

The purpose of this study is to examine and describe processes of communication in joint decision-making between married couples when one of the spouses has aphasia using speech functions as the principle unit of analysis (Eggins & Slade, 2004). Speech functions comprise a comprehensive network for describing the conversational ‘moves’ produced in an exchange between speakers. An analysis of move types, or speech

functions, enables researchers to describe dialogue on the basis of speakers' communicative intentions while also recognizing that speech functions are systematically related and constrained by prior moves in the conversation. Such an analysis is of interest to researchers and clinicians because it can reveal the extent to which specific speech functions may no longer be demonstrated by individuals with aphasia or how communication styles adopted by the communication partner could enable or hinder opportunities for the person with aphasia to use a variety of speech functions for expressing meanings (Armstrong & Mortensen, 2006). To explore the phenomenon of interest, research questions were developed based on studies in the literature on related topics.

#### *Research Questions*

The study was designed around these initial research questions:

*Question 1:* Do individuals with aphasia differ from their significant others in regards to the total number of speaker moves produced when jointly making a decision?

*Question 2:* Does the percentage of opening and sustaining moves differ between persons with aphasia and their significant others?

*Question 3:* Does the percentage of continuing and reacting moves differ between persons with aphasia and their significant others?

*Question 4:* Does the percentage of supporting and confronting reactions differ between persons with aphasia and their significant others?

*Question 5:* What speech function classes do the spouses with and without aphasia use most frequently when jointly making a decision, and what function do they serve in the couples' collaboration?

### *Significance of the Study*

Findings from this study will provide insight into how married couples affected by aphasia communicate when collaboratively making a decision. Given that the process of joint decision-making typically requires high-level communication abilities, such as negotiation and argumentation, the study's primary task will presumably be difficult for the individuals with aphasia. Greater awareness of the issues investigated in this study could have an impact on how speech-language pathologists assess deficits and problems associated with aphasia. In addition, knowledge gained from this study could lead to improved interventions for addressing a common problem. Information gleaned from this study could ultimately improve quality of life and marital satisfaction in spouses affected by aphasia.

## Chapter Two

### Review of the Literature

The review of the literature begins with a discussion on the definition, etiology, and classification of aphasia. Next, it describes and contrasts two approaches to aphasia rehabilitation, namely impairment-based and social approaches. Third, selected research on communication partner training is summarized. Fourth, pertinent literature exploring the concept of joint decision-making in marital relationships, including the importance of joint collaboration to marital satisfaction and well-being, types of collaborative decisions, and communication behaviors involved in joint-decision making, is described. The literature concludes with a review of investigations on speech act usage in people with aphasia and provides reasons for using speech functions, instead of speech acts, to summarize interactional discourse.

#### *Aphasia*

Aphasia can be defined as an acquired neurogenic language disorder characterized by an impairment in one or more areas of communication including verbal expression, auditory comprehension, reading, and writing and is not the result of a sensory or motor deficit (Brookshire, 2007; Darley, 1982; Goodglass, 1993; Hallowell & Chapey, 2008). While some individuals make a full recovery of language function, many people who acquire aphasia live with chronic deficits. The long-term consequences of aphasia go beyond the disruption of communication (Simmons-Mackie, 2008). Aphasia has a profound negative impact on the well-being, independence, social participation, and quality of life of persons with aphasia as well as their relatives and caregivers (Kauhanen

et al., 2000; Le Dorze & Brassard, 1995; Papathanasiou et al., 2012; Parr, 1994; Parr, Byng, & Gilpin, 1997).

### *Etiology of Aphasia*

Aphasia results from cortical or subcortical damage in the perisylvian region of the language-dominant hemisphere of the brain (Damasio, 2008; Goodglass & Wingfield, 1997; Kiran, 2012). The left-hemisphere is dominant in nearly all right-handed individuals and in about 70% of left-handed individuals (Alexander, 1997). Although aphasia may be a consequence of a variety of neuropathologies including traumatic brain injury; tumor; infection; neurotoxicity; brain surgery; and degenerative diseases such as Alzheimer's or Pick's, cerebrovascular accident (CVA), or stroke, is by far the leading cause of aphasia (Damasio, 1992; Damasio, 2008; LaPointe, 2005). A stroke occurs when neurons are damaged due to a disruption of blood supply to the brain. Strokes are classified into two broad categories: ischemic and hemorrhagic. Ischemic strokes occur with the complete or partial occlusion of arteries and are likely to cause aphasia when located in the territory of the left middle cerebral artery (Alexander, 1997; Damasio, 2008). Ischemic strokes account for approximately 80% of the cases of aphasia (Berthier, 2005). Hemorrhagic strokes occur when a blood vessel within the intracranium ruptures (Mlcoch & Metter, 2008)

### *Classification of Aphasia*

Individuals with aphasia generally exhibit recognizable syndromes with respect to their ability to produce, comprehend, and repeat linguistic information (Davis, 2007). Two broad categories of aphasia, fluent and non-fluent, have been described in the literature (Damasio, 1981; Goodglass, Kaplan, & Barresi, 2001). Individuals with fluent

aphasia produce speech effortlessly, use a variety of syntactical constructions, and have normal or near normal rate of speech. However, their speech often lacks meaning or is characterized by word-finding errors (Davis, 2007). There are four basic types of fluent aphasias: Wernicke's, transcortical sensory, conduction, and anomic aphasia.

Individuals with non-fluent aphasia produce characteristically slow, labored utterances. The variety of grammatical constructions produced in the spontaneous speech of these patients is markedly restricted; intonation may be reduced or absent; and sentences consist largely of nouns (Howard & Hatfield, 1987). Often morphemes and function words are omitted in sentence productions (Goodglass, 1993; Howard & Hatfield, 1987). There are three types of aphasia classified as non-fluent: Broca's, transcortical motor, and global aphasia.

#### *Impairment-Based Approaches to Aphasia Rehabilitation*

Impairment-based aphasia rehabilitation is based on a medical model with one of its goals being to restore as much communication as the patient's damaged system allows (Rosenbek, LaPointe, & Wertz, 1989). Traditionally, impairment-based treatment is carried out in a relatively controlled context, such as an office or a treatment room, and focuses on decontextualized tasks and discrete language functions (Simmons-Mackie, 2008). As befitting treatments based on the medical model, patients are regarded as 'recipients of treatment' and clinicians as 'providers.' Within this paradigm, the clinician is responsible for dictating treatment goals and controlling therapy activities (Simmons-Mackie, 2008).

Much of what is done in providing impairment-based aphasia treatments is based on the work of Hildred Schuell and her colleagues (Schuell, Jenkins, & Jimenez-Pabon,

1964) and often referred to as the Stimulation Approach (Coelho, Sinotte, & Duffy, 2008). A fundamental tenet of this approach is that aphasia is a general language deficit crossing all language modalities (speaking, writing, listening, and reading) and improving performance in one modality will improve performance in other modalities as well. Aphasia therapists committed to this approach therefore seek to ‘restore’ impaired linguistic functions through carefully selecting treatment tasks and stimuli that, according to Schuell and colleagues, will “make something happen in the patient’s brain” if performed successfully (Schuell et al., 1964). Clinicians using this approach also adhere to certain principles associated with this restorative treatment. These include providing stimulus that is adequate (Brookshire, 2007), the use of intensive auditory stimulation (Marshall, 1978), deblocking (Weigl, 1961), selective use of prompting and cueing (Basso, Capitani, & Vignolo, 1979), and multimodal stimulation (Gardiner & Brookshire, 1972). In 1978, Brookshire and Nicholas reported on the findings of a study in which they reviewed forty audio- and video-recorded aphasia treatment sessions from clinical facilities across the United States. The study found that clinicians were rather uniform in the delivery of their therapy sessions. All treatment sessions consisted of three components: clinician’s stimulus, client’s response, and clinician’s feedback (Brookshire & Nicholas, 1978).

### *Social Approaches to Aphasia Rehabilitation*

Over the last 30 years, aphasia therapists and researchers have increasingly embraced a social model for aphasia rehabilitation (Chapey et al., 2008; Elman, 2005; Holland & Goldberg, 2007; Simmons-Mackie, 2008; Simmons-Mackie, King, & Beukelman, 2013). This began in the 1970s when clinicians and researchers (Davis &



Wilcox, 1981; Holland, 1977) started to realize that many people with aphasia “communicate better than they talked” (Holland, 1977, p. 173). The focus on the functional or transactional aspects of communication prompted clinicians and researchers alike to think more about how to incorporate elements of natural communication, such as exchanging new information, equal participation, free choice of communication channels, and providing feedback based on communication adequacy into therapy sessions (Davis & Wilcox, 1985; Frattali, 1998). Support for aphasia treatment based on a social model further increased in popularity in the 1990s when clinicians and researchers in the United States and other English-speaking countries (Kagan, 1995; Kagan & Gailey, 1993; Lyon, 1992, 1997) began to realize that the person with aphasia functions within a larger communicating society and all are impacted by aphasia as well as recognition of aphasia as a chronic disability by the World Health Organization (WHO; 2001).

Social approaches to aphasia rehabilitation have their goal helping the client and those affected by aphasia live as successfully as possible with the disorder (Simmons-Mackie, 2008). Treatments based on a social model may have, as their goal, a wide spectrum of options (Kagan et al., 2008). The most well-known social approach is the Life Participation Approach to Aphasia (LPAA; Chapey et al., 2008). In LPAA, patients, family members, and clinicians collaboratively construct treatment goals and activities to help all affected by aphasia return to previously enjoyed activities or discover new activities, address life problems at home and in the community, and improve communication within everyday contexts (Simmons-Mackie, 2008). In contrast to the clinician-directed approach, which is characteristic of the medical model, the LPAA is consumer-driven (Chapey et al., 2008). An essential component to aphasia management

within a social approach model is that treatment should address communication within personally relevant contexts in order to improve participation in real-life activities (Simmons-Mackie, 2008). Consequently, there has been a shift from analyzing and treating the communication skills of the person with aphasia to analyzing and treating dyadic interactions in everyday contexts, especially in context of the person with aphasia and his or her spouse (Simmons-Mackie, Kearns, & Potechin, 2005). Recognizing that communication is a collaborative achievement between speakers, social approaches emphasize the use of partner training as a means to reduce barriers to successful communication and participation in activities. A considerable literature on the application of social approaches to the management of aphasia has arisen since this movement began in the 1990s (Elman, 2005). It is far beyond the confines of this literature review to discuss even a small percentage of the studies. What will follow is a brief summary of selected works that demonstrate the value of partner training in aphasia intervention.

### *Communication Partner Training*

Conversational coaching is a strategy that was initially developed by Audrey Holland and described in the early 1990s (Holland, 1991). The method involves repeatedly rehearsing a scripted conversation co-constructed by the client and clinician. The clinician provides feedback to the client regarding the effectiveness of the communication throughout the therapy session. Family members and friends are recruited into the process in order to cultivate communication strategies that can be used outside of the clinic. The interaction is video recorded and viewed by everyone involved in the conversation to determine which contextual strategies are effective and which

strategies need modifying (Holland, 1991). It should be emphasized that the scripted scenarios rehearsed in therapy closely approximates a specific real-life situation relevant to the patient, such as meeting someone new at church or placing a bet at a horse race.

In a treatment study on the effectiveness of conversational coaching, Hopper, Holland, and Rewega (2002) provided strategy training to two married couples in which the husbands exhibited moderately severe and severe Broca's aphasia. Following ten treatment sessions, both couples increased the percentage of co-constructed main concepts successfully communicated on a story retelling task administered prior to and after treatment. Furthermore, results were socially validated by a group of sixteen speech-language pathology students, with no experience in working with people with aphasia and no prior knowledge of the study. After observing videos of the couples retelling two stories before and after treatment, the students identified more main concepts successfully communicated in the post-treatment condition than in the pre-treatment condition and were able to distinguish between the pre- and post-treatment conditions based solely on the participants' communicative performance. Additionally, one participant demonstrated improvement on a standardized functional communication test following treatment. Positive findings in terms of improvements in interactional story-telling following conversational coaching were also reported in a study by Carragher, Sage, and Conroy (2015).

Boles (2015) examined the effects of a treatment technique called 'alignment' on improving the balance of spouses' relative contribution to conversations between a woman with Wernicke's aphasia and her husband. Alignment refers to the use of similar words in conversation to establish a "common ground" between speakers (Boles, 2015, p.

221). In employing alignment as a strategy for modifying conversational interactions, communication partners are trained to restate information provided to them by their aphasic spouses. This feedback provides the persons with aphasia an opportunity to confirm that their message was correctly received or repair information inaccurately transmitted. Following twenty weeks of therapy, administered twice per week in sixty minute sessions, improvements were observed in the amount of information produced by the wife with aphasia and a decrease in the amount of information produced by her husband leading to a more balanced conversational interaction, compared to their pre-therapy baseline levels. Additionally, statistically significant improvements in the amount of balance within the conversations between the couples were found at week 9 and week 20 of treatment based on observer ratings obtained by a group of 54 students.

Simmons-Mackie et al. (2005) assessed the treatment and generalization effects of a spouse training program involving recognition training using a multiple-baseline design across behaviors. Treatment consisted of structured viewings of video-recorded segments of a couple's interactions with clinician feedback provided to reduce the occurrence of spouse interruptions and convergent questioning. Generalization effects were evaluated by examining changes in the spouse's use of negative teaching, i.e., correcting a successful communication attempt for articulation errors or impaired syntax. Positive changes were observed in the spouse's interactions with her aphasic husband for both trained behaviors and the untrained generalization behavior.

A popular couple-based aphasia treatment program in the United Kingdom is the Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC) Communication Training Programme (Lock et al., 2001). SPPACR is a

commercially available program for treating and assessing speaker's turns in conversations between couples and is based on concepts rooted in the Conversation Analysis (CA) framework (e.g., conversational sequences and repair). Numerous studies employing SPPARC or adaptations closely related to SPPARC (e.g., interactive-focused therapy) have demonstrated improved changes in the communicative interactions between spouses affected by aphasia when treatment was administered to couples (Beckley et al., 2013; Beeke et al., 2014; Beeke, Maxim, & Wilkinson, 2007; Saldert, Johansson, & Wilkinson, 2015; Wilkinson et al., 1998; Wilkinson, Bryan, Lock, & Sage, 2010; Wilkinson, Lock, Bryan, & Sage, 2011) or to a group of spouses of persons with aphasia (Saldert, Backman, & Hartelius, 2013).

Some researchers have examined solution-focused interventions for helping couples solve communication problems arising in their relationship following the onset of aphasia (Boles & Lewis, 2000). Solution-focused interventions target specific problem-behaviors identified by the couple and emphasize positive reinforcement when effective solutions to the problems are demonstrated (Boles & Lewis, 2000). Fox, Armstrong, and Boles (2009) used a solution-focused approach to help a person with aphasia initiate more conversational topics and ask more questions during conversations with her husband and to increase the amount of probing questions asked by the husband when he was unclear of the meaning of his aphasic wife's utterances. After fourteen sessions of therapy, gains were identified on some of the treated behaviors, the couple reported increased satisfaction in conversations with each other, and improvements were noted by three independent observers, who rated samples of the couple's conversations prior to and after treatment.

Total communication training is a treatment approach that encourages the use of all possible communication methods, including non-verbal channels, and is typically recommended for individuals with moderate and severe aphasia (Rautakoski, 2011b). In studies by Rautakoski (Rautakoski, 2011a, 2011b, 2012, 2014), communication partners and individuals with aphasia were trained to use total communication techniques to facilitate interactive exchanges. Reports from the participants revealed that both the partners and individuals with aphasia felt that the training increased their use of multimodal strategies six months after the completion of treatment. Moreover, the communication partners reported increased functional communication by the individual with aphasia on the *Communicative Effectiveness Index* (CETI; Lomas et al., 1989) in Rautakoski (2012).

Another adaptation of communication partner training, closely related to total communication, is Supported Conversation for Adults with Aphasia (SCA; Kagan, 1998). In SCA, spouses, friends, healthcare professionals, and other potential communication partners are trained to employ techniques of SCA, and in so doing, they serve as “communication ramps” that enables individuals with aphasia to participate in conversations and other life activities. SCA is generally administered in group settings and is directed at providing education and communication strategies to anyone who may come into contact with persons with aphasia. Some studies have used the techniques of SCA in the context of couple-based aphasia therapy. For example, Blom Johansson, Carlsson, Östberg, and Sonnander (2013) provided education and therapy to three couples while the spouses with aphasia were still in the acute or subacute phase of recovery. Some of the couples who received the treatment demonstrated improved

communication and/or increased understanding of aphasia after only few treatment sessions.

While an exhaustive description of couple-based aphasia treatments is not possible within the limitations of this review, the sample of studies discussed above is adequate for highlighting a few key principles to aphasia therapy carried out within a social approach paradigm. First, communication is trained in, or at least directed toward, authentic conversational contexts relevant to persons affected by aphasia. Second, the focus of treatment is on the collaborative nature of communication. Third, involving spouses in the assessment and treatment activities improves outcomes in therapy.

Although LPAA emphasizes the importance on addressing communication in authentic conversational contexts, to date aphasia research aimed at understanding and describing couples' interactions in specific discourse genres is limited. Research exploring potential problems arising out of every day conversational contexts in married couples affected by aphasia is needed for advancing the mission of LPAA and enhancing relevant life participation needs of the clients and the spouses affected by aphasia. One of the most common forms of daily communication between married couples is decision-making (Kelley, 2011). Given that the process of joint decision-making often requires high-level communication skills, such as argumentation and negotiation, married couples affected by aphasia are at risk for experiencing difficulties engaging in this form of social interaction. Greater awareness of the problems married couples affected by aphasia face when collaboratively making a decision could impact how speech-language pathologist assess deficits and improve interventions.

### *Joint Decision-Making between Couples*

In the broadest sense, joint decision-making between couples refers to the process of “handling problem decisions for which...spouses have no immediate or agreed upon response alternative” (Thomas, 1977, as cited in Krueger & Smith, 1982, p. 121).

Problem-solving between spouses involving joint decision-making is a common activity (Kelley, 2011; Meegan & Berg, 2002). Spouses engage in collaborative decision-making when they plan a vacation, discuss purchasing additional healthcare coverage, handle disagreements between relatives, neighbors, and co-workers, decide when and where to retire, discuss desired renovations to their house, and the like (Meegan & Berg, 2002).

Different forms of collaborative decision-making have been described in the literature. “Direct” collaboration is a type of problem-solving in which both spouses share the responsibility of decision-making by contributing to the decision-making process. “Indirect” collaboration is a form of problem-solving that occurs when couples share responsibilities by dividing the responsibilities up amongst themselves. Indirect forms of collaboration may assume traditional gender roles for completing household chores (e.g., men mow the lawn and manage the financial responsibilities and women prepare the meals and wash the laundry), or they may depend on the expertise and desires of a spouse (Meegan & Berg, 2002). Within long-term relationships, collaborative arrangements between couples change. For example, a husband and wife may have to change roles from driver to passenger when traveling in a car if the person who usually served the role as the primary driver suffers a stroke (Husak, Marshall, & Rowles, 2015).

“Thoughtful” decision-making is a form of ‘direct’ collaboration (Jaccard, Brinberg, & Dittus, 1989). Thoughtful decisions are determined after contemplating and



discussing such factors as the problem situation, alternative courses of action, and consequences of a decision. According to Jaccard et al. (1989) couples engage in thoughtful decision-making when they perceive the decision to be important.

Research exploring collaboration between older adults has received considerable attention in the cognitive aging literature (Berg et al., 2003; Berg et al., 2008; Cheng & Strough, 2004; Dixon & Gould, 1996; Hoppmann & Blanchard-Fields, 2011; Kimbler & Margrett, 2009; Margrett, 1999; Meegan & Berg, 2002; Strough, Cheng, & Swenson, 2002; Strough & Margrett, 2002; Strough, Patrick, Swenson, Cheng, & Barnes, 2003). Several studies have demonstrated that collaborative dyads outperform individuals on many tasks and that married couples perform better than unacquainted dyads (Meegan & Berg, 2002). Jennifer Margrett (1999) found that married couples perform better than individuals and unacquainted dyads on tasks including reading, comprehending, evaluating, and comparing printed materials (e.g., bills and prescriptions); dealing with hypothetical dilemmas (e.g., disagreements with the neighbors); and planning daily errands (Margrett, 1999; Margrett & Marsiske, 2002).

Studies have shown that collaborative problem-solving improves marital satisfaction and well-being (Berg et al., 2003; Heavey, Christensen, & Malamuth, 1995; Johnson et al., 2005). For example, in studies on older men coping with prostate cancer, anxiety and depression were lower when wives were available to discuss treatment options than when the men had to make their decisions alone (Berg et al., 2008; Lepore & Helgeson, 1998).

Despite research demonstrating that joint decision-making facilitates performance on problem-solving tasks, assists couples in identifying goals and overcoming obstacles,

and improves well-being and relational satisfaction, joint decision-making glitches between spouses can also hinder success and positive outcomes (Meegan & Berg, 2002). For example, difficulties can result when spouses offer unsolicited advice or critically evaluate their significant other's decisions. Specific interpersonal communication behaviors (e.g., countering, rejecting, correcting, resisting, etc.) can also negatively affect collaborative performances and are associated with poor marital quality (Berg et al., 2003; Meegan & Berg, 2002).

The communication behaviors between married couples affected by aphasia have been studied extensively. Findings from the corpus of literature on this subject provide significant evidence that non-aphasic spouses interrupt their aphasic spouses (Armstrong, Fox, & Wilkinson, 2013; Fox et al., 2009) and frequently express opinions or add information when a third person is speaking to the spouse with aphasia (Croteau & Le Dorze, 2006; Croteau, Vychytil, Larfeuil, & Le Dorze, 2004). Research has also shown that non-aphasic spouses engage in "competitive storytelling," that is, they complete, correct, and contradict their aphasic spouses' narratives of events (Manzo, Blonder, & Bums, 1995). Such behaviors can lessen the participation of the person with aphasia in specific conversational contexts (Croteau, Le Dorze, & Baril, 2007). It is unknown whether such behaviors arise in collaborative decision-making in married affected by aphasia.

Traditionally studies investigating spousal decision-making have focused on the outcome of the decision, rather than the process by which the spouses jointly make decisions (Krueger & Smith, 1982). Studies that have examined the process of joint decision-making have done so by examining the types and patterns of speech acts used in

decision-making communication (Krueger, 1983; Krueger, 1985; Krueger & Smith, 1982; Raush, Barry, Hertel, & Swain, 1974). Speech acts are the basic unit of communication and reflect a speaker's intention rather than the semantic representation of the sentence-meaning (Austin, 1975; Searle, 1969). For example, when a speaker asks "Can you open the door?," the speaker is requesting that the listener perform a specific action rather than literally inquiring about the listener's ability (Davis, 2007). A number of speech act taxonomies have been developed to describe a speaker's intention. Common speech acts identified in the literature include labeling, answering, requesting an action, requesting an answer, calling, greeting, protesting, repeating, asserting, and informing (Austin, 1975; Dore, 1974; Searle, 1969; Wilcox, Davis, & Youse, 2005). Krueger and Smith (1982) reported on the types of speech acts used by four married couples engaged in a decision-making role-play task. Although the role-play scenarios were different for each of the couples (e.g., deciding how to spend money won in a sweepstakes, resolving a conflict in career plans, etc.), the couples' use of speech act types was remarkably similar. In general, couples mostly provided new information and agreed with their spouses' statements and seldom, if at all, rejected or ignored their spouses, avoided blame, or used coercion. The frequencies of most- and least-used categories of speech acts indicated that the couples were generally supportive and cooperative in their collaborative decision-making efforts and that they avoided strategies of withdraw and force (Krueger & Smith, 1982). In a sequential study by the same lead author, the researcher examined the conversations of a young couple making a decision about their upcoming career options. Analysis of their conversations showed that each partner used a variety of speech acts in their discussions, but differences in the

communication patterns were minor. In general, when information was requested by one partner, the other partner either provided information or proposed a solution; when one partner provided information, the other partner tended to agree; and when a partner disagreed, the other partner provided reasons or also disagreed (Krueger, 1983).

Together these studies indicate that individuals in intimate relationships frequently employ similar speech acts (and patterns of speech acts) as their significant others when they are engaged in a collaborative decision-making activity (Krueger, 1985).

#### *Speech Act Analysis in Aphasia*

Speech act analyses have not only shed light on important aspects of collaborative decision-making in non-brain injured couples, they have been used for describing the communicative interactions of people with aphasia. An advantage of using speech acts for assessing and treating functional communication in people with aphasia is that they provide a means for describing language beyond linguistic forms. Wilcox et al. (2005), used John Searle's speech acts taxonomy (Searle, 1969) to classify the communicative acts of three individuals with aphasia and three clinicians in two different conditions. The first condition involved three one-hour individual therapy sessions, and the second condition involved four thirty-to-sixty minute social group sessions. Of note, the social group sessions were not structured group therapy sessions but rather unstructured sessions for casual conversation and social contact. In both conditions, the individuals with aphasia demonstrated a limited variety of speech acts, primarily consisting of assertions produced in response to clinicians' questions and requests. An important implication of the study's findings is that there were few self-initiated assertions produced by the individuals with aphasia in either condition.

Further evidence that individuals with aphasia use a restricted range of speech acts in conversations was provided by Doyle, Thompson, Oleyar, Wambaugh, and Jackson (1994). The study compared the proportionate distribution of speech acts (statements, requests, and answers) between a non-brain injured control and a group of individuals with aphasia in different conversation conditions: familiar vs. unfamiliar communication partner, open- vs. closed-conversational topic, home vs. simulated home environment, and two vs. three conversation partners. The study found that the group of individuals with aphasia produced significantly fewer statements and requests and significantly more answers than the control across all conditions.

While important findings have been made by examining the types of speech acts used by speakers with aphasia, researchers have pointed out theoretical and practical limitations associated with the applications of speech act theory in clinical practice (Carlomagno, Blasi, Labruna, & Santoro, 2000; Lesser & Milroy, 2014; Prutting & Kittchner, 1987). Consequently, some researchers have recommended using a closely related construct known as speech functions (to be discussed in detail in the next chapter) for analyzing conversational discourse (Armstrong & Mortensen, 2006; Egging & Slade, 2004). At least three advantages have been described in the literature for using speech functions over speech acts. First, specific speech acts are not logically linked to each other, except in basic adjacency pairs, such as, question-and-answer, request-and-grant, offer-and-accept, and other similar sequences (Armstrong & Mortensen, 2006; Egging & Slade, 2004). In contrast, speech functions are linked together in a systemic network of logico-semantic choices. The network is useful for providing enriched descriptions of the continuous flow of conversational exchanges. Second, descriptions of speech acts do not

typically involve variations in degrees of “delicacy” (Eggins & Slade, 2004). That is, in traditional speech act theory, the act of asking a question is typically coded as a ‘question’ or a ‘request.’ However, in everyday language use (in English), when a person asks a question, he may ask for a(n) opinion, fact, clarification, or repetition of the previous statement, and the question may be open-ended or closed. To capture a comprehensive picture of a conversation in terms of types of opportunities a person is given to respond to another person, greater degrees of semantic delicacies need to be described. As will be shown in the next chapter, speech function categories are useful for describing minute, albeit important, dynamics of a conversational interaction. Third, many studies that use speech acts as the unit of analysis code each speakers’ conversational ‘turn’ as a single speech act (e.g., Krueger, 1983; Krueger, 1985; Krueger & Smith, 1982; Raush et al., 1974). This can lead to problems in accurately analyzing a conversation since a speaker’s turn can involve one or more speech acts. For instance, a speaker may answer another person’s question, and then, in the same turn, ask a question herself. In order to capture the variety of communication acts produced in conversational exchanges, the unit of analysis needs to be the speaker’s ‘move,’ and not ‘turn’ (Eggins & Slade, 2004).

### *Summary*

Diverse topics have been summarized in this chapter, beginning with a relatively straightforward overview of aphasia, including its definition, etiology, and classification. Next, the review highlighted a shift in aphasia rehabilitation away from decontextualized, stimulus-response tasks toward improving participation in real-life activities. This evolution has led to a change in focus from treating only the individual with aphasia to

also helping others affected by aphasia, including spouses. A summary on the evidence of communication partner training demonstrated positive outcomes in the communicative interactions between spouses who received treatment. This area of research can be extended to address problems that arise in the everyday conversational context of joint decision-making. An investigation on this subject would identify factors that could guide future research, improve assessment, and tailor interventions for addressing problems associated with collaborative decision-making experienced by married couples living with aphasia. This study aims to address this problem by providing foundational data from a detailed analysis of the communicative interactions of couples affected by aphasia while they are engaged in a joint decision-making task.

## Chapter Three

### Speech Function Network

This chapter begins with an exploration of the theoretical underpinnings of speech functions. Next, a summary on the speech function network is provided in terms of their meanings with illustrative examples provided from the data used in the present study. Lastly, applications of speech function analyses in aphasia research are reviewed.

#### *Halliday's Theory of Speech Functions*

In Michael Halliday's systemic-functional linguistics (SFL) model of dialogue, speech functions play a central role in how meanings are negotiated in spoken texts. One of the cornerstones of the SFL account of dialogue is that speech functions make up a network of choices that are available to speakers for initiating and continuing a conversational exchange. These choices establish the boundaries of speakers' roles in a conversation and are typically assigned to them by a previous speaker. Hence, Halliday writes:

In the act of speaking, the speaker adopts for himself a particular speech role, and in so doing assigns to the listener a complementary role which he wishes him to adopt in his turn. For example, in asking a question, a speaker is taking on the role of seeker of information and requiring the listener to take on the role of the supplier of the information demanded.... Typically, therefore, an 'act' of speaking is something that might more appropriately be called an 'interact': it is an exchange in which giving implies receiving and demanding implies giving in response. (Halliday, 1985, p. 68)



As revealed in the above quotation, speech roles are classified as ‘giving’ and ‘demanding,’ in Halliday’s SFL model. Halliday maintained that whenever speakers use language to interact, they establish a relationship with each other, such that the person who is currently speaking constrains the types of responses that the next speaker can make when it is his turn in the exchange.

The assignment of speaker roles, established by interactants in an exchange, highlights the dialogic nature of conversation in SFL theory. Another equally important cornerstone of the SFL model of dialogue relates to the nature of the commodity being exchanged. In Halliday’s account, exchange commodities are classified as either ‘goods-and-services’ or ‘information’ (Halliday, 1985). An exchange of ‘goods and services’ involves a speaker either demanding an object or service or giving an object or service, and an exchange of ‘information’ involves a speaker either demanding information or giving information to another person. According to Halliday, all conversational interactions consist of exchanging one or both types of commodities (Halliday, 1985).

Speech functions involve both a speech role and a commodity choice and refer to the linguistic (verbal and non-verbal) acts individuals utilize to negotiate meanings in an exchange (Egins, 1994; Halliday, 1985). Halliday defines four basic speech functions that serve to initiate a conversational exchange: statement, question, offer, and command. With these four initiating speech functions, a speaker can open a dialogue up by ‘giving’ or ‘demanding’ goods-and-services or information, that is, information can be given by making a *statement* or demanded by asking a *question*; goods-and-services can be given by making an *offer* or demanded by making a *command* (Halliday, 1985).

Since dialogue is inherently interactive, speakers' choices of available responses are constrained by the initiating speech function produced by the prior speaker. In SFL, each initiating speech function is matched with a pair of anticipated responses, which are commonly labeled as 'supporting' and 'confronting' responses in the literature (Armstrong et al., 2013; Eggins, 1994; Eggins & Slade, 2004), and denote whether the response is accepting or rejecting of the initiating speech function (Halliday, 1985). Table 1 provides a summary of the four initiating speech functions and their corresponding supporting and confronting responses.

Table 1

*Initiating and Responding Speech Functions in Halliday's SFL Model of Dialogue*

Initiating Speech Functions	Responding Speech Functions	
	Supporting	Confronting
Offer	acceptance	rejection
Command	compliance	refusal
Statement	acknowledge	contradiction
Question	answer	disclaimer

As illustrated in the above table, there are eight speech function classes that can be used for describing dialogic exchanges between speakers, that is, each of the four initiating speech functions can be paired with either a supporting or confronting reply. Of course, in everyday conversations, there is a much wider array of speech function options available to speakers. A speaker may, for instance, say "Hi" to another person, which does not entail giving or demanding information or goods-and-services, but rather may have been performed only to display attention to the other speaker, or perhaps to draw them into a dialogue. It was not Halliday's intention to provide a comprehensive list of available speech functions, but instead to lay a foundation for others to expand on

this contribution of describing dialogue as an exchange of roles and commodities as well as a network of choices that provide restrictions on the types of speech functions a speaker can utilize in a dialogue given his/her current role in the conversation and the type of exchange commodity being discussed. In the next section, an overview of one of the most comprehensive and widely used accounts of a speech function network will be provided with illustrative examples from data used in the present study.

### *The Speech Function Network*

This section provides a summary of the speech function network developed by Eggins and Slade (2004) for analyzing conversations. Readers who are familiar with this work may wish to skip this section or simply review the figures and tables for a refresher of the speech function network and the meaning of the terms.

### *Moves and Turns*

In the speech function analysis (SFA) framework, the units of discourse analysis are *turns* and *moves*. A turn refers to all the talk produced by one speaker before talk is transferred to a different speaker. A move refers to the unit of discourse after which another speaker could talk without it being perceived as an interruption (Eggins & Slade, 2004). Thus, the end of a move marks a potential stopping point in a speaker's turn. A move's end is the point at which a turn-transfer could occur in a conversation without a speaker interrupting the previous speaker. In conversations, turns are comprised by one or more moves, and therefore a single turn can realize multiple speech functions. For instance, a person may answer another speaker's question and then in the same turn ask a question himself. For this reason, turns cannot be used to code or analyze speech functions; instead the discourse unit used for coding speech functions is the move.

Before describing how moves are classified in the speech function network, it is important to understand how moves are identified in conversations.

In turn-taking discourse, moves are typically realized by clauses. This is not to suggest that moves and clauses are identical. Moves are discourse units that express speech functions, while clauses are grammatical units (Eggins & Slade, 2004). However, in spoken conversation, moves are often realized by clauses. Hence, Eggins and Slade (2004) stated: “while the clause and the move are distinct units, so fundamental to language structure is the clause that most of the time a move is realized by a clause: that is, most clauses are moves, and most moves are clauses” (p. 186). Eggins and Slade (2004) proposed two criteria for judging whether a clause is a move. The first criterion is based on the grammaticality of the speaker’s move. In most cases, a dependent (or subordinate) clause and the main clause upon which it depends will constitute a single move. For example, consider the following statement: “She said that she wants to eat.” “She said” is a reporting clause, and without knowing what she said, the move would be seen as incomplete; so, together the two clauses form a single move. There are, however, exceptions to this criterion, and therefore, Eggins and Slade proposed a second criterion based on prosodic patterns in a speaker’s expression. Eggins and Slade note that the intonation and rhythm of a person’s spoken communication can signal points of possible turn-transfers in conversations. For example, when there is an extended pause between an independent and dependent clause in a spoken statement, the two clauses can constitute separate moves. In this case, the dependent clause may be seen as providing additional information that was not intended to be spoke in the first place, and therefore, performs a speech function in its own right independent of the main clause. Conversely,

a speaker may produce a “run-on” by increasing her rate of speech at the end of a clause, thereby rushing into the next clause so as to avoid losing her turn in the conversation to another speaker (Eggins & Slade, 2004).

Moves are generally the primary focus of researchers’ attention in speech function analyses since these are the classifiable units of discourse in the SFA framework (Armstrong & Mortensen, 2006). However, the importance of analyzing turns should not be underemphasized. Turn analysis can be useful for highlighting pertinent features in conversational exchanges. For example, by analyzing the number of turns taken up by the speakers in a conversation, a researcher can identify dominant and passive interactants in the conversation. Alternatively, a researcher may be able to identify which specific individuals speakers in a conversation are most interested in interacting with by analyzing the sequences of turns between the speakers.

The SFA framework, as developed and described by Eggins and Slade (2004), is summarized below. Figure 1 provides a global overview of the all components of the network. The summary is divided into six sections based on the broad categories of the network (opening moves, sustaining moves, continuing moves, reacting moves, responding moves, and rejoinder moves). The meaning and purpose of the subcategories in each of the six groups are described and illustrated with examples from data extracted from the participants completing in the primary tasks used in this study, namely the ‘Airplane Crash’ and ‘Stranded in the Desert’ tasks (described in detail in the next chapter). In this study, the primary investigator read two hypothetical scenarios to married couples, in which one spouse had aphasia (PWA) and the other did not (SO).

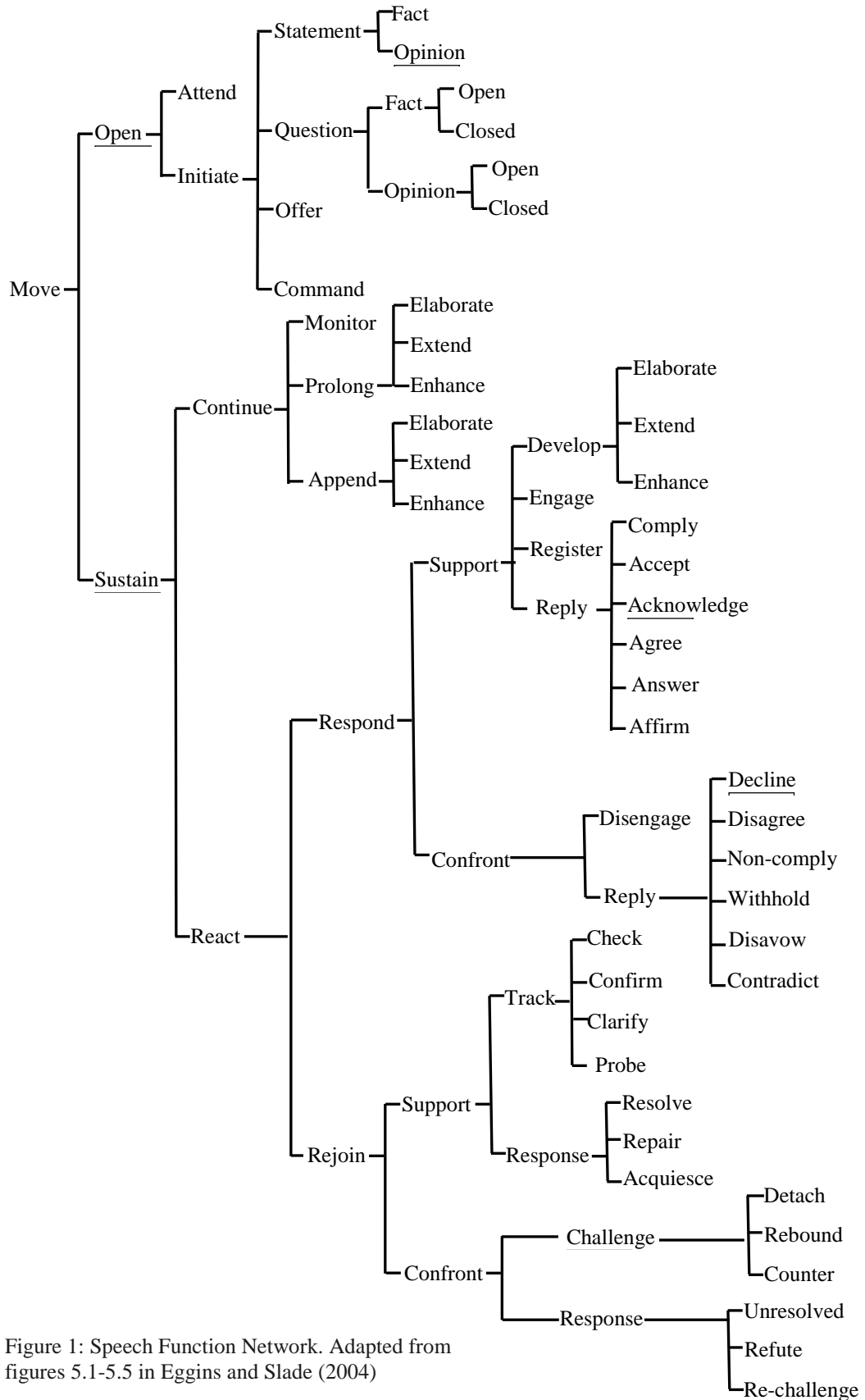


Figure 1: Speech Function Network. Adapted from figures 5.1-5.5 in Egging and Slade (2004)

A total of fourteen couples participated in the study. In the Stranded in the Desert task, the couples were told that they were stranded in the Simpson Desert after their overland tourist motor vehicle crashed and caught fire; in the other task, the couples were told that their plane had crash-landed in snow-covered Northern Canada and they needed to survive until the search-and-rescue team arrived. After each of the scenarios was described to them, the couple was given a list of items from which they individually chose six items and ranked them in order of importance for their value in helping them survive the situation. Next, the spouses were instructed to develop an agreed upon list of six items and rank them in order of importance. The examples depicted below in the summary of the speech function network were extracted from the couple's conversations while completing the Airplane Crash task.

### *Opening Moves*

Opening moves are used to initiate an exchange between speakers or begin a sequence of dialogue on a new conversational topic within an ongoing interaction. As illustrated in the speech function network (see Figure 1), opening moves are broadly classified as *attending* or *initiating*. Attending moves set the stage for the conversation without directly initiating a topic for discussion. They are used primarily for securing a person's attention or drawing a potential interactant into the conversation. Examples of attending moves include greetings and salutations. In the example below, the couple has each made their individual decisions on the items they would select for the survival task and have just asked the researcher for clarification on what to do next. After the researcher provided them with instructions and left the room, the husband with aphasia

(PWA-8) sought to secure his wife's (SO-8) attention in order to begin working on the task together.

Example 1:

PWA-8: Okay, let's see, let's see, how we, how we do this together  
[open:attend]

Opening moves that initiate a conversational topic or talk around a proposition are represented as initiating moves in the speech function network. Initiating moves function to give or demand information or goods-and-services. An initiating move that gives information is coded as a *statement* and can be further classified as a statement of fact or opinion. In the example below, PWA-10 opens by pointing out that he and his wife both selected the cigarette lighter as their first choice.

Example 2:

PWA-10: One, one. (points to "cigarette lighter" on both his and her list)  
[open:initiate:statement:fact]

SO-10: Yeah, we had cigarette lighter.  
[react:respond:support:develop:elaborate]

In the next example, the couple had just finished disagreeing on whether or not the compass would be useful for their survival in Northern Canada. The spouse (SO-14) sought to change the subject by suggesting that they consider items that would help them build a fire.

Example 3:

SO-14: I'm thinking we need something to, when I think about it,  
I think maybe we need something to make fire==to  
keep warm.  
[open:initiate:statement:opinion]

PWA-14: ==Right, right.  
[react:respond:support:reply:agree]



An initiating move that demands information from another speaker is coded as a *question*. Like statements, there are two types of questions: questions that seek factual information and questions that seek opinion information. Questions can be further classified as open or closed. Open questions seek information for the completion of a proposition whereas closed questions seek support or confrontation for a provided proposition. In the next example, the husband (SO-1) considers his wife's proposal to make the 20 x 20 foot piece of canvas their number one choice; however, rather than agreeing with or countering her, he changes the subject by asking her a question.

Example 4:

SO-1: 20 feets of canvas, Okay.  
[react:respond:support:register]

I have that number three, but I have it as one of my six.  
[continue:prolong:extend]

Okay, I got that.  
[continue:prolong:elaborate]

Okay, what else do you got?  
[open:initiate:question:fact:open]

In the next example, the couple has just begun working on the second survival task together, and the spouse seeks the opinion of her husband (PWA-3) on how they should proceed.

Example 5:

SO-2: So, you want me to go first this time with my list ==or do you want to go first with yours?  
[open:initiate:question:opinion:closed]

PWA-3: ==Yeah, yeah.  
[react:respond:support:reply:affirm]

Initiating moves also function to give or demand goods-and-services. When an object or service is given to another speaker, the speech function is coded as an *offer*. When a speaker demands that an addressee perform a specified service or give him a requested object, the speech function is coded as a *command*.

In the example shown below, the spouse of a person with aphasia decided that it would be best for her husband to read what she has written on her individual list before they collaborated to devise a final list.

Example 6:

SO-4: Here I'll share with you what I have. (SO-4 hands her list to PWA-4).  
[open:initiate:offer]

PWA-4: Okay.  
[react:respond:support:reply:accept]

The use of commands as an opening move occurred infrequently in the conversations in this study. Instead commands were more frequently used at the end of a discussion on a conversational topic. After a decision was made, spouses sometimes commanded the other spouse to write down their decision on the final list. Below is one of the few instances in which an opening move functioned as a command in the present study.

Example 7:

SO-4 Okay, you go first.  
[open:initiate:command]

Table 2 provides a brief overview of the opening moves in the speech function network.

Table 2

*Opening Moves in the Speech Function Network*

Speech function	Definition\Discourse purpose	Example #
open:attend	seek attention of potential interactant	1, 12
open:initiate:statement:fact	initiate conversational topic by stating factual information	2
open:initiate:statement:opinion	initiate conversational topic by stating an opinion	3
open:initiate:question:fact:open	initiate conversational topic by requesting factual information	4, 9, 14
open:initiate:question:fact:closed	initiate conversational topic by requesting confirmation of factual information	
open:initiate:question:opinion:open	initiate conversational topic by requesting the opinion of another interactant	22
open:initiate:question:opinion:closed	initiate conversational topic by requesting confirmation of opinion information	5
open:initiate:offer	initiate exchange by offering goods or services	6
open:initiate:command	initiate exchange by requesting goods or services	7

*Sustaining Moves*

Sustaining moves continue an exchange between speakers after the topic of the conversation has been initiated. Sustaining moves are broadly classified as *continuing* and *reacting*. Continuing moves are realized when a conversation is sustained by a current speaker, while reacting moves occur when another interactant takes over the speaker role in the exchange.

### *Continuing Moves*

Continuing speech functions are subclassified as *prolonging*, *appending*, and *monitoring*. A prolonging speech function occurs when a speaker sustains the proposition by taking another move after the completion of his previous move. In making a prolonging move, the speaker sustains the interaction by contributing additional information to the conversation at hand. In the speech function network, three prolonging subcategories are used for describing the types of expansion a speaker demonstrates when sustaining talk about a proposition: *elaboration*, *extension*, and *enhancement*.

In elaborations, moves clarify, restate, or exemplify the content of a prior move. The elaborating relationship between moves are made explicit by the insertion of conjunctions, such as, “I mean,” “for example,” and “like,” between the two related moves; however, in rapid conversation, such conjunctions are often left implicit, and the relationship is implied by the juxtaposition of the prolonging moves (Eggs & Slade, 2004, p. 197).

In the next example, the spouse elaborates to make explicitly clear that a compass is not a worthwhile item and that he disagrees with his wife’s suggestion to put it on the final list.

#### Example 8:

SO-5: The compass, we’re not going anywhere.  
[react:rejoin:confront:challenge:rebound]

We don’t need the compass.  
[continue:prolong:elaborate]

In extensions, moves contribute additional or contrasting information to a prior move, and are sometimes, but not necessarily, linked with conjunctions, such as, “but,” “instead,” “rather,” “and,” “or” and “except.” Extension is used in the next example to provide a justification for selecting the Crisco shortening. The spouse presumably felt that her husband would not agree with the choice, and therefore, wanted to explain her reasoning to him.

Example 9:

PWA-3: What'd you do for number six?  
[open:initiate:question:fact:open]

SO-3: A can of Crisco shortening...  
[react:respond:support:reply:answer]

Um...to, I would use that on my skin, um, um, to, as a barrier, um, also we can burn it, you know, if we needed something to, if we needed to start a fire.  
[continue:prolong:extend]

In enhancements, moves qualify or modify the information provided in a prior move. Enhancing moves provide temporal, spatial, causal, or conditional details about the prior move and may be made explicit by conjunctions, such as, “then,” “because,” “so,” “before” and “after.” Enhancing moves were seldom used in the discourse context of this study.

Appending moves are similar to prolonging moves in that they both maintain a logico-semantic relationship to a prior move and are subclassified according to the same continuing speech functions: elaboration, extension, and enhancement. The key difference between prolonging and appending moves is that in prolonging moves the speaker takes another move immediately after completing his previous move, whereas in an appending move, the speaker loses his turn due to another speaker taking a turn, but,

as soon as he regains his turn, he produces a move that represents a logical expansion of his prior move. In other words, an appending move occurs when a turn transfer exists but rather than replying to the information provided by another speaker, the initial speaker continues his conversation as if the other speaker had not intervened. An example of an appending move in the form of an elaboration is provided below.

Example 10:

SO-14: This is just a map of the area, like it would be like this, like a map of Canada.  
[react:respond:support:reply:answer]

PWA-14: Oh.  
[react:respond:support:register]

SO-14: That's not going to help us if we can't go anywhere.  
[continue:append:elaborate]

Prolonging and appending moves are important speech functions. They build on or fill out information provided in previous moves. Their frequent use in conversation illustrates that speakers often do not express everything that they desire to say in a single move.

A third classification of prolonging moves represented in the speech function network is *monitoring*. Monitoring moves are used by a speaker to confirm that the listener is still engaged in the conversation. Monitoring moves occur when a speaker seeks support for his own position or indicates a willingness to hand over the conversational turn to another speaker. Although monitoring moves were infrequent in the discourse context of the current study, monitoring plays an important function in communication in that it focuses on continuing the state of the interaction of the

conversation, by checking that the audience is following the thread of the discussion or inviting others to take a turn.

A brief overview of the continuing moves represented in the speech function network is provided in Table 3.

Table 3

*Continuing Moves in the Speech Function Network*

Speech function	Definition\Discourse purpose	Example #
continue:prolong:elaborate	sustain proposition by taking another move to restate, clarify, or exemplify previously provided information	4, 8, 18, 20, 25, 27
continue:prolong:extend	sustain proposition by taking another move to contribute additional or contrasting information	4
continue:prolong:enhance	sustain proposition by taking another move to provide temporal, spatial, causal, or conditional details about previously provided information	
continue:append:elaborate	sustain proposition by taking another move, after intervention by another speaker, to restate, clarify, or exemplify previously provided information	10
sustain:continue:append:extend	sustain proposition by taking another move, after intervention by another speaker, to contribute additional or contrasting information	
continue:append:enhance	sustain proposition by taking another move, after intervention by another speaker, to provide temporal, spatial, causal, or conditional details about previously provided information	
continue:monitor	Check that audience is still engaged in the interaction	



### *Reacting Moves*

Reacting moves realize the interactive nature of conversation through speakers reacting to moves produced by other speakers. Reacting speech functions capture the options available when a turn transfer has occurred in a conversation. The speech function network differentiates between two broad groups of reacting moves: *responses* and *rejoinders*.

### *Responding Moves*

Responses are reacting moves that tend to bring the communicative exchange toward completion. Responses are used by a speaker to negotiate the terms of a proposition or proposal advanced by a previous speaker. Responding reactions can be accepting or resistant to the terms set up by the previous speaker and are coded as *supporting* or *confronting*, respectively.

Supporting responses generally accept the proposition of another speaker and are classified according to four main categories: *developing*, *engaging*, *registering*, and *replying*.

Developing moves support the proposition set up by a previous speaker by expanding on what the previous speaker said. Finer distinctions can be used to describe the nature of a developing move in three subcategories: *elaboration*, *extension*, and *enhancement*. The definitions of these terms are identical to the definitions provided above in the discussion on prolonging and appending moves, with just one exception. Whereas a speaker elaborates, extends, or enhances his own proposition in a prolonging or appending move, in a developing reaction, he expands on the terms of a proposition advanced by a previous speaker. In so doing, he can restate, clarify, or exemplify what

the previous speaker said (elaborate), provide additional or contrasting information to the prior speaker's move (extend), or qualify the prior speaker's move in terms of temporal, causal, or conditional information (enhance). An example of a developing elaboration is illustrated below:

Example 11:

SO-9: You want to do the cigarette lighter?  
[react:rejoin:support:track:confirm]

PWA-9: Yeah.  
[react:respond:support:develop:affirm]

SO-9: Yeah, you had that.  
[react:respond:support:develop:elaborate]

Engaging moves simply express a speaker's willingness to engage in new or existing conversation. Their function is not to negotiate the terms of a proposition set up by a previous speaker's move, but rather to indicate agreement to participate in the exchange. They generally occur in response to an 'attention-seeking' move. In the below example, the spouse signals that she is ready to begin working on the survival tasks and her husband responds by showing that he is ready as well.

Example 12:

SO-4: OK  
[open:attend]

PWA-4: OK  
[react:respond:support:engage]

Registering moves are reactions that provide supportive encouragement for the message expressed in a previous speaker's move but do not contribute new or additional information to the conversation. They are often used to indicate an interest for the previous speaker to take another move in the conversation, as when a person expresses

surprise in what was just said to her (e.g., “oh” or “really”). Registering moves can also be used to indicate that the content of a prior speaker’s move was heard by repeating the information or expressing a formulaic minor clause of agreement (e.g., “OK, “mmhmm,” or producing a non-verbal head nod) (Eggins & Slade, 2004).

Example 13:

SO-13: And we both had the cigarette lighter for number three.  
[continue:prolong:elaborate]

PWA-13: Mmm.  
[react:respond:support:register]

Replying moves function to negotiate the terms of a proposition advanced in a prior speaker’s move by *complying* with the other speaker’s demand, *accepting* the speaker’s offer, *acknowledging* familiarity with what the speaker said, *agreeing* with the information produced in the speaker’s move, *answering* an open-ended question, or *affirming* with a positive response to a closed-ended question.

It should be noted that replying moves can be paired with six of the initiating moves outlined above when a speaker seeks to express support or acceptance with the initiation. For example:

- (1) open:initiate:statement:fact—react:respond:support:reply:acknowledge,
- (2) open:initiate:statement:opinion—react:respond:support:reply:agree,
- (3) open:initiate:question:open—react:respond:support:reply:answer,
- (4) open:initiate:question:closed—react:respond:support:reply:affirm,
- (5) open:initiate:offer—react:respond:support:reply:accept, and
- (6) open:initiate:command—react:respond:support:reply:comply.

Since supporting replies indicate acceptance of a prior's speaker's move, they are generally seen as non-assertive and can create alignment between the speakers. However, such non-assertive acceptance can also suggest that the relationship between the speakers is one of dependence or subordination, as when one speaker almost always defers to the other speaker's initiations (Egins & Slade, 2004).

Examples of speakers producing affirming and answering replies in an exchange are shown below.

Example 14:

PWA-14: What is that?  
[open:initiate:question:fact:open]

SO-14: What is a compass?  
[react:rejoin:support:track:confirm]

PWA-14: Yeah.  
[react:respond:support:reply:affirm]

SO-14: A compass is like this (draws a circle) and you have North, South, East, and West.  
[react:respond:support:reply:answer]

In contrast to supporting responses, confronting responses are reactions that indicate some form of disagreement or non-compliance with a prior speaker's move. There are two main classifications of confronting responses in the speech function network: *disengagement* and *reply*.

Disengaging responses occur when a speaker disengages from the exchange by refusing to answer a question or comment on a statement. These responses are usually realized by responding with silence rather than verbalizing disagreement with a proposition proposed by a different speaker. When a speaker's reply overly expresses disagreement either verbally or nonverbally, such as shaking the head, there are six

available confronting options (Eggin & Slade, 2004). These include *declining* a speaker's offer, *disagreeing* by providing a negative response to a closed-ended question, *non-complying* with a person's command, *withholding* information due to an inability to provide the requested information, *disavowing* factual information stated by another person, and *contradicting* the information produced in a previous speaker's move.

Like supporting responding replies, confronting responding replies can be matched with initiating moves to indicate non-acceptance or disagreement with a previous speaker's proposition in the following six ways:

- (1) open:initiate:statement:fact—react:respond:confront:reply:disavow,
- (2) initiate:statement:opinion—respond:confront:reply:contradict,
- (3) initiate:question:open—respond:confront:reply:withhold,
- (4) initiate:question:closed—respond:confront:reply:disagree,
- (5) initiate:offer—respond:confront:reply:decline, and
- (6) initiate:command—respond:confront:reply:non-comply.

Examples of confronting replies in the form of disagreements are illustrated below in an exchange on the topic of whether drinking whiskey raises body temperature.

Example 15:

SO-10: Wouldn't it make you warm?  
[react:rejoin:support:track:clarify]

PWA-14: No!  
[react:respond:confront:reply:disagree]

SO-14: Whisky doesn't?  
[react:rejoin:support:track:confirm]

PWA-14: Ya, no, no, no, no.  
[react:respond:confront:reply:disagree]

Table 4 provides a brief summary of the supportive and confronting responses and their subcategories. Unlike supporting responses, confronting replies do not suggest a potential deferential or subordinating position in relation to the initiator (Eggins & Slade, 2004). Supporting and confront replies are similar, however, in that they both tend to close off the exchange by avoiding interactions that negotiate differences in opinions and ideas. As we will see below, linguistic opportunities for keeping the channels of negotiation open are available in rejoinder moves.

Table 4

*Responding Moves in the Speech Function Network*

Speech function	Definition\ Discourse purpose	Example #
<b>Supporting</b>		
react:respond:support:develop:elaborate	restate, clarify, or exemplify information provided by a previous speaker	2, 11
react:respond:support:develop:extend	contribute additional or contrasting information to a proposition provided by a previous speaker	9
react:respond:support:develop:enhance	provide temporal, spatial, causal, or conditional details to information provided by a previous speaker	
react:respond:support:engage	show willingness to engage in interaction, especially in response to a salutation	12
react:respond:support:register	show interest in information provided by another speaker	4, 10, 13, 18
react:respond:support:reply:comply	show willingness to provide goods or services requested by another speaker	14
react:respond:support:reply:accept	show willingness to accept goods or services offered by another speaker	6
react:respond:support:reply:acknowledge	indicated knowledge of information provided by another speaker	
react:respond:support:reply:agree	express agreement with information provided by another speaker	3
react:respond:support:reply:answer	answer another speaker's question	9, 14, 18

Table 4 (continued)

*Responding Moves in the Speech Function Network*

Speech function	Definition\ Discourse purpose	Example #
<b>Supporting</b>		
react:respond:support:reply:affirm	provide a positive response to a closed-ended question	5, 11, 14, 17, 19
<b>Confronting</b>		
react:respond:confront:disengage	refuse to engage in the exchange—by silence	
react:respond:confront:reply:decline	provide negative response to an offer	
react:respond:confront:reply:disagree	provide a negative response to a closed-ended question	15
react:respond:confront:reply:non-comply	show inability to provide goods or services requested by another speaker	
react:respond:confront:reply:withhold	indicate inability to provided information demand by another speaker	
react:respond:confront:reply:disavow	deny acknowledgement of information provided by another speaker	
react:respond:confront:reply:contradict	negate information provided by previous speaker	

*Rejoinder Moves*

While responding moves tend to close down the exchange, rejoinder moves keep the negotiation of a proposition between interlocutors going by demanding additional information, expressing doubt, or offering an alternative position. Rejoinders are broadly classified as *tracking* or *challenging* with more refined classifications and descriptions



available for each group. Tracking moves are supportive in that they merely delay the anticipated completion of the exchange, without indicating disagreement with the proposition. There are four subcategories of tracking moves: *checking*, *confirming*, *clarifying*, and *probing*.

Checking and confirming moves ensure that a previous speaker's move has been understood. Checking moves check on the content to ensure that there is no missing information or that the information has not been misunderstood. Typically, in a checking move, a speaker will ask the previous speaker to repeat her previous move. For example, PWA-7 asked her spouse to repeat herself:

Example 16:

SO-7: The 20 by 20 foot piece of canvas.  
[react:respond:support:reply:answer]

PWA-7: The what?  
[react:rejoin:support:track:check]

Unlike checking moves, confirming moves do not elicit a repetition of a previous speaker's move; instead, confirming moves verify that an interactant has understood the content expressed in the previous speaker's move. As illustrated in the example below, SO-6 wanted to confirm that his wife had changed her mind and now agrees with him:

Example 17:

SO-6: All right so I put that as a two.  
[continue:prolong:extend]

PWA-6: OK, Well.  
[react:rejoin:support:response:acquiesce]

SO-6: You gonna defer, y, you wanna go with mine?  
[react:rejoin:support:track:confirm]

PWA-6: Yeah.  
[react:rejoin:support:response:affirm]

Clarifying moves seek additional information needed to understand a prior move or make a request for a previous speaker to elaborate on his prior move. In the example below, PWA-12 asked his wife to explain why she selected the Crisco shortening:

Example 18:

SO-12: Three, three I had a can of Crisco shortening.  
[react:respond:support:reply:answer]

PWA-12: What's that for?  
[react:rejoin:support:track:clarify]

SO-12: It's for cooking things...  
[react:respond:support:reply:answer]

If you, you know, if you want to cook something you have to have some source of something.  
[continue:prolong:elaborate]

SO-12: Yeah, OK.  
[react:respond:support:register]

In a probing move, the speaker offers additional details or implications for confirmation by the initial speaker. An important characteristic of a probe is that the information introduced by the tracking speaker stands in a logico-semantic relationship to the initial speaker's move. A common linguistic form used in producing a probing move is the tagged declarative (Eggins & Slade, 2004), as demonstrated below:

Example 19:

SO-2: You can gather much wood and twigs and everything, but if you don't have something to light it with, it's not going to be any good out there, right?  
[react:rejoin:support:track:probe]

PWA-2: Yeah, yeah.  
[react:respond:support:reply:affirm]

Tracking moves play an important role in the negotiation of a proposition because they further the number of exchanges in the conversation by producing queries for clarification. In so doing, they delay a speaker's reaction on the basis that the information contained in the initial speaker's move is inadequate or not fully understood. Tracking moves are considered supportive since they do not imply disagreement with the proposition but serve the principal purpose of seeking clarification of the content in the initial speaker's remark. Rejoinder moves that confront an initial speaker's move by expressing doubt or disagreement with it are coded as challenging moves. Three types of challenges are described in the speech function network: *detach*, *rebound*, and *counter*.

A detaching move occurs when a speaker attempts to terminate the interaction or avoids further negotiation on the subject at hand. Unlike disengagement, which seeks to terminate the interaction by responding with silence and withdrawing from the conversation, detachment may be realized through silence or producing an expression of termination. In the below example, the couple had been arguing for quite a while and were unable to come to an agreement. SO-10 decided that she was finished with the conversation and ended by writing a final item for herself and a different one for her husband rather than continuing to try to come to an agreement on the sixth item.

Example 20:

SO-10: So, we'll put that as you: husband compass is six.  
[continue:prolong:elaborate]

I don't know what you want it for.  
[continue:prolong:elaborate]

I don't know maybe you have it right.  
[continue:prolong:elaborate]

And I'm putting the chocolate bar as six, wife, OK.  
[react:rejoin:confront:challenge:detach]

In a rebounding move, the challenging speaker questions the relevance, veracity, or legitimacy of the initiating speaker's move, thereby requiring that the initial speaker provide a justification for his stated opinion. Rebounding moves can take the form of an interrogative sentence, as illustrated below:

Example 21:

SO-9: Why do you need a compass 'cause you're not going anywhere?  
[react:rejoin:confront:challenge:rebound]

It is important to note the difference between contradicting, as described above, and rebounding. In the former instance, the replying speaker seeks to negate the initiating speaker's opinion; however, in the latter, the challenging speaker expresses doubt and demands that the initiating speaker justify his position. Thus, in a rebounding challenge, the reacting speaker sends the burden of the interaction back to the initial speaker by calling into question the validity of his opinion (Eggins & Slade, 2004).

Countering moves occur when a challenging speaker advances an alternative interpretation (a counter-position) of a situation than that described by a previous speaker. In the below example, PWA-10 countered his wife's opinion that the chocolate bar is important for their survival. He has maintained since the beginning of the discussion that food was not necessary since the survivors would freeze to death before they starved; therefore, all items that they selected needed to serve the purpose of signaling for help and staying warm.

Example 22:

SO-10: And then what are we gonna do for six?  
[open:initiate:question:opinion:open]

I have the chocolate bar.  
[continue:prolong:elaborate]

PWA-10: Noooo, I won't!  
[react:rejoin:confront:challenge:counter]

Tracking moves, and to some extent challenging moves, seek additional information. They are therefore typically responded to with a rejoinder response by the initiating speaker. These responses may be *supporting*, which is commonly the case when responding to tracking moves, or *confronting*, which are often seen in response to a challenge.

Responses which do not challenge the import of a tracking or challenging move are considered supporting responses. These responses involve *resolving*, *repairing*, and *acquiescing*.

Resolving moves clarify information in response to a tracking move, as demonstrated below:

Example 23:

SO-1: That's if, I mean, are you in agreement?  
[react:rejoin:support:track:clarify]

PWA-1: Yeah.  
[react:rejoin:support:reply:resolve]

In a repairing response, a speaker corrects or amends information produced by another speaker about the meaning of the initial speaker's previous move. For example,

Example 24:

SO-1: No, you're thinking, naw, you're thinking of a flare gun, this is the regular pistol.  
[react:rejoin:support:reply:repair]

An acquiesce occurs when a speaker accedes to the information being negotiated in an exchange. This type of response is commonly used to acquiesce to a challenge in a conversation, and therefore, differs from an agreeing reply. In the below example, PWA-11 quickly accedes to SO-11's challenge concerning the relevance of the plastic air map, which PWA-11 thought was important for helping the search-and-rescue team find them. In the audio file of this conversation, there was a noticeable tone of reluctance to PWA-11's voice when she acquiesced.

Example 25:

SO-11: But we can't, here's, we can't talk to any, they're gonna come out and look for us in the air.  
[react:rejoin:confront:challenge:rebound]

We can't talk to anybody in the air, so we can't give them our location.  
[continue:prolong:elaborate]

PWA-11: Alright.  
[react:rejoin:support:response:acquiesce]

The speech function network contains three options for responding to a challenge when the initiating speaker does not agree with the import of the challenge. The three confronting responses are *unresolve*, *refute*, and *re-challenge*.

In an unresolved response, the initiating speaker proclaims that he cannot resolve or explain a query expressed in a challenging move, and therefore, the terms of the proposition cannot be settled by the speakers. Although unresolved responses were not produced in the Airplane Crash task, a few instances were observed in the Stranded in the Desert task. For example,

Example 26:

SO-10: You have oil.

[react:respond:support:develop:elaborate]

I don't know, I don't agree on that; so, I don't, I don't know.

[react:rejoin:confront:response:unresolved]

I have water.

[continue:prolong:elaborate]

We won't agree on this.

[rejoin:confront:response:unresolved]

A challenge is refuted by a speaker when she attempts to contradict the information expressed in the challenging moves. In the next example, SO-4 challenged PWA-4's idea that they should add the compass to their list on the basis that they are not going to leave the crash site. However, PWA-4 refutes his wife's challenge and insisted that the compass was important for the survivors for other reasons. A section of this exchange is provided below:

Example 27:

PWA-4: Well, I think, compasses perfect wh, where we are and all that stuff.

[react:rejoin:confront:response:refute]

OK. I compass, is good, actually.

[continue:prolong:elaborate]

SO-4: Yeah, it would be if we were gonna walk, if we were gonna go somewhere.

[react:rejoin:confront:challenge:rebound]

But are we going to walk to the nearest town, or are we staying with the plane, waiting for them to come to us?

[react:rejoin:support:track:probe]

PWA-4: Yes, but where is exact, where's act.

[react:rejoin:confront:response:refute]

A re-challenge occurs when a speaker offers an alternative position to a challenge, thereby redefining the proposition set up in the initial exchange. In this study, re-challenges and rebounds were the most frequently used confronting reactions. An example of a re-challenge is depicted below:

Example 28:

SO-4: Okay, let me, let me tell you: I'd rather take this because this is for cover.  
[react:rejoin:confront:response:re-challenge]

A summary of the rejoining speech functions, involving the subcategories of tracking, challenging, and supporting and confronting responses, is provided in Table 5.



Table 5

*Rejoinder Moves in the Speech Function Network*

Speech function	Definition\ Discourse purpose	Example #
<b>Supporting</b>		
react:rejoin:support:track:check	elicit a repetition from a previous speaker	16
react:rejoin:support:track:confirm	verify information stated by a previous speaker	11, 15, 17
react:rejoin:support:track:clarify	obtain additional information for understanding previous speaker's message	18, 18, 23
react:rejoin:support:track:probe	provide information for confirmation by another speaker	19, 27
react:rejoin:support:response:resolve	provide clarification to another speaker	23
react:rejoin:support:response:repair	correct or amend previously stated information	24
react:rejoin:support:response:acquiesce	accede to information provided by prior speaker	17,25
<b>Confronting</b>		
react:rejoin:confront:challenge:detach	terminate exchange	20
react:rejoin:confront:challenge:rebound	question relevance, legitimacy, or veracity of information provided by a prior speaker	8, 21, 25, 27
react:rejoin:confront:challenge:counter	dismiss prior speaker's right to their position	22
react:rejoin:confront:response:unresolved	query remains unexplained or unresolved	26,
react:rejoin:confront:response:refute	contradict import of a challenge	27
react:rejoin:confront:challenge:re-challenge	offer alternative position	28

Rejoinder moves are common in spoken interactions because they tend to keep the subject of the conversation going, unlike responding moves which generally close down the negotiation. Since tracking moves continue the exchange without expressing disagreement with a prior speaker's position, they suggest a willingness of the speaker to engage in the conversation or express alignment between the interlocutors. By contrast, challenging moves confront the prior speaker's position, and therefore, are assertive and imply independence between the speakers (Eggins & Slade, 2004). In either case, both tracking and confronting moves typically set the stage for additional exchanges between the interactants through soliciting clarifying information, demanding justifications, or introducing counter-positions into the negotiation. A speaker's response to a tracking or challenging move can be supporting, as when the speaker seeks to repair a misunderstanding or acquiesces with a challenge, or confronting, as when he attempts to refute a challenge.

This concludes the overview of the speech function network as developed and described by Eggins and Slade (2004). In the next section, three clinical applications of the framework from the aphasia literature will be discussed.

#### *Applications of the Speech Function Network in Aphasia Research*

In 2006, Elizabeth Armstrong and Lynne Mortensen proposed using the speech function network as an analytic tool for describing the interactions between people with aphasia and their conversational partners (Armstrong & Mortensen, 2006). At the heart of this proposal was the idea that the SFA framework could be useful in explaining the nature of a conversational interaction to persons with aphasia and their conversational partners and incorporating conversation principles into aphasia therapy. While the

speech function network is detailed, it can be used at any level for targeting conversation goals according a client's communication ability and the skill level of the partners to provide conversational support (Armstrong & Mortensen, 2006). For example, for an individual with moderate or severe aphasia, treatment might focus on increasing the amount of initiating moves produced in conversations, while individuals with mild aphasia may be encouraged to increase the variety of their responding moves to include acknowledgements and confronting statements. Communication partner training schemes might also be enhanced by utilizing the SFA framework. This might involve reducing negative communication behaviors, such as asking an excessive amount of closed-ended questions or producing only supportive moves (thereby denying opportunities for the person with aphasia to respond to confronting assertions). For these reasons, the authors maintained that the network is a useful resource for a variety of clinical purposes; sections of the network or specific levels of delicacy can be isolated and targeted in treatment to individualize conversation goals in aphasia therapy and communication partner training.

In a case study by Armstrong et al. (2013), the investigators examined the communication behaviors of argumentation discourse in a married couple in which the wife had mild aphasia. At the time of the study, she was approximately one year post-stroke onset. The couple reported that before the stroke they enjoyed having arguments and that the stroke had interfered with their ability to continue participation in this activity. To examine the nature of argument discourse in this couple, the researchers transcribed four ten-minute samples of the couple engaged in an argument over religion, politics, and climate change. Analysis was carried out on three levels. Two levels

employed systemic functional linguistics analyses, including speech function analyses, and a third level employed Conversation Analysis (CA) to examine conversational overlap and repair. In the present summary, only the sections of the study utilizing SFA will be discussed.

The researchers explored the nature of the couple's discourse in argument by comparing each of the spouses' relative contributions to the conversation across four SFA categories: (1) total number of moves produced by each spouse, (2) percentage of opening versus sustaining moves used by each of the spouses, (3) percentage of continuing versus reacting moves produced by each spouse, and (4) percentage of supporting versus confronting moves used by each of the spouses. Analysis of their discourse data revealed that the couple produced approximately the same number of total moves in their conversations and the same percentage of supporting and confronting moves. A small difference in the percentages of opening versus sustaining moves between the spouses was identified, with the husband making more opening moves than his wife. The main difference between the couple's relative contributions to the conversations was that the wife made markedly fewer continuing moves compared to her husband, indicating that she did not elaborate on her ideas and that she mostly responded to questions or comments produced by her husband.

Since conversational arguments and joint decision-making are both types of "convergent-seeking discourse" (Weger Jr & Canary, 2010), the speech function framework used to describe the nature of the couple's argumentation in Armstrong et al. (2013) would also be useful to examining joint decision-making in this study.

Hersh, Godecke, Armstrong, Ciccone, and Bernhardt (2016) examined the nature of interactions between nurses and three male stroke inpatients at an acute-care hospital. Continuous 7.5 hour of audio- and video-recording was obtained in each patient's room for data collection. Two of the three patients had a stroke in the left cerebral hemisphere with resultant aphasia; one patient had moderately severe Wernicke's aphasia and the other had severe global aphasia. The third patient's stroke was located in the right hemisphere and did not result in aphasia. This patient served as a non-aphasic comparison in the study. All patients were sixteen to seventeen days post-stroke onset at the time of the data collection.

Conversational interactions between the patients and nurses were coded for speech functions using the procedures of Eggins and Slade (2004), as described in the above section. The study found that nurses controlled the flow of the conversation by producing a large majority of the opening moves in interactions with all three patients. Markedly fewer conversational turns by the nurses were found in interactions with the individual with global aphasia, suggesting that nurses' communication attempts were influenced by the severity of patient's language deficits. When comparing the nurses' conversational interactions between the man with moderate Wernicke's aphasia and the man without aphasia, more speaking turns were produced by the nurses conversing with the patient with aphasia, indicating that nurses fill in the "talking space" left empty by linguistic difficulties in a way that was not necessary in talking to the non-aphasic patient (Hersh et al., 2016, p. 617). The pattern of interaction between patients with aphasia and the nurses generally consisted of the patients responding to closed-ended questions raised by the nurses. By contrast, the patient without aphasia demonstrated a wider variety of

speech function classes and was overall more assertive in his interactions than the individuals with aphasia, who were mostly supportive and reactive. When efforts were attempted to build up the conversation by a patient with aphasia, through elaborations and extensions, nurses occasionally shut down the conversation, as the authors explained:

P1, with his fluent Wernicke's output, initiated and tried to continue and develop his moves, but his nurses closed down his interactions on a number of occasions, possibly because of the time they were taking, because of the potential to lose control of the exchange, or simply not knowing what else to try (Hersh et al., 2016, p. 622).

Lastly, little evidence of communicative repair or use of supported conversation strategies was demonstrated by the nurses during their interactions with the two patients with aphasia (Hersh et al., 2016).

### *Summary*

This chapter explored the theoretical underpinning of SFA according to Michael Halliday's model of dialogue and then provided an overview of the expanded speech function network developed by Suzanne Eggins and Diana Slade. The chapter concluded with a summary on the clinical applications of the SFA framework in aphasia research.

The current study extends the previous work on SFA in aphasia research in three respects. First, the study replicates portions of the work by Armstrong et al. (2013) with a larger sample of married couples ( $N = 14$  dyads). Second, the study utilizes the SFA framework for analyzing joint decision-making discourse. Third, it applies inferential statistics to the analysis to increase the generalizability of the study's findings.

## Chapter Four

### Methods

The chapter begins with a description of the recruitment procedures employed in this study. Next, the testing material utilized in the study will be summarized and an overview of the participants and their performance on the testing material provided. Lastly, the two experimental tasks associated with this study are described as well as the procedures for collecting, transcribing, and analyzing the data.

#### *Recruitment*

Although probability sampling remains the gold standard in quantitative research, the scope, manpower, and budget of this study prohibited successful recruitment of a random sample. Therefore, a convenience sample of volunteers was utilized. Convenience sampling involves recruiting participants who are accessible and willing to participate in the study. Participants were recruited between September 2016 and October 2017.

Recruitment of participants occurred primarily through word-of-mouth and approved written announcements posted on websites and billboards. Locations for recruitment included the Kentucky Clinic, the University of Kentucky Aphasia Lab, Frazier Rehab Aphasia Group, Duquesne University Speech-Language-Hearing Clinic, and the University of Kentucky Center for Clinical Translational Sciences' website. Typically, potential participants contacted the primary investigator by phone or email in response to the posted announcements or at the suggestion of a speech-language pathologist or other individual familiar with the study. Participants recruited from Duquesne University were identified by Dr. Sarah E. Wallace and were scheduled to

meet with the primary investigator at the participants' home. Prior to enrolling participants in the study, the primary investigator provided a basic explanation about the nature of the study and the tasks that the participants would complete for the study. All participants were screened briefly to determine potential eligibility for the study during the initial contact. This included questions regarding any known neurological impairments, length of time in the relationship with their significant other, and the communication severity level of the person with aphasia. Potential participants were eligible to participate in the study if one of the significant others had aphasia and the other had no known neurological disorders. Consideration for inclusion was provided to couples who were (1) in a relationship for at least 3 years, (2) at least 35 years of age, and (3) Native speakers of English. In a few instances, the primary investigator made an *a priori* decision that the language skills of the person with aphasia were too impaired for inclusion in the study.

#### *Demographic Data*

Demographic data were obtained from all participants using the demographic data form in Appendix A. If needed, participants with aphasia completed the demographic data form with assistance from either the primary investigator or their significant other. Information collected on the demographic data form included age, gender, educational achievement, and the number of years the participants have been in a relationship with their significant other. If couples initially reported a difference in the amount of time they have been together in their relationship, the primary investigator asked the couples to discuss the subject together and arrive at a consensus regarding the length of time they have been in a relationship (including the time spent dating prior to marriage). The



demographic data form was also used to collect time of aphasia onset and self-reports pertaining to participants' communication impairments.

### *Participant Demographics*

Fourteen married couples volunteered to participate in this study. All couples were heterosexual, except for one lesbian couple. The length of time the couples reported being in a relationship together ranged from 16 to 54 years, with a mean relationship length of 41.96 ( $SD = 11.09$ ) years. The participants were between 58 and 78 years of age and had a mean age of 68.61 ( $SD = 5.43$ ) years. All participants had at least a high school level of education (12 or more years of education), three participants had some college or a technical degree (13-15 years of school), ten participants had a bachelor's degree (16 years of school) and twelve had a graduate degree or completed some graduate level coursework (17 or more years of education). The mean number of months post-stroke onset for the fourteen participants with aphasia was 67 ( $SD = 61.35$ ) and ranged from 11 to 210 months, indicating that the participants had chronic aphasia (see Table 6).

Table 6

*Participant characteristics*

Dyad	PWA					SO		
	Length of Relationship (in years)	Age	Sex	Education (in years)	MPO	Age	Sex	Education (in years)
1	54	73	F	16	18	75	M	20
2	41	58	F	18	114	58	M	16
3	16	67	M	16	45	71	F	16
4	46	63	M	13	180	66	F	15
5	42	63	F	14	210	67	M	18
6	37	68	F	16	54	73	M	17
7	36	73	F	19	18	68	F	16
8	49	70	M	19	73	71	F	16
9	48	76	M	23	51	71	F	19
10	25	70	M	18	68	62	F	18
11	50	70	F	16	22	73	M	17
12	54	78	M	18	17	76	F	16
13	38	62	M	16	11	59	F	12
14	52	68	M	12	57	66	F	12

F = female; M = male; MPO = months post-onset; PWA = person with aphasia; SO = spouse of person with aphasia

*Testing Materials*

Prior to being given the experimental tasks associated with this study, participants were assessed with a variety of measures. All measures were collected by the primary investigator in two to four sessions, lasting an average of 60 to 90 minutes per session.

Two measures were administered to all the participants. These measures included (1) the *Raven's Coloured Progressive Matrices* (RCPM; Raven, 1995) to measure participants' nonverbal reasoning abilities, and (2) the *Autonomy and Relatedness Inventory* (ARI; Hall & Kiernan, 1992) to measure participants' perception of their significant other's attitudes toward them (see Appendix B). Additionally, a number of measures were administered to the participants with aphasia to characterize their

cognitive-communication deficits. First, participants' aphasia severity and classification were established through the use of a standardized aphasia test, the *Western Aphasia Battery-Revised* (Kertesz, 2007). Second, supplementary information regarding the participants' spoken communication abilities was obtained with the *Boston Naming Test-Second Edition*, a measure of confrontation naming abilities, and by analyzing connected speech samples elicited by the *Cookie Theft* picture (Goodglass & Kaplan, 1983) for Mean Length of Utterance (MLU), speech rate, and informativeness (Nicholas & Brookshire, 1993). Third, participants' reading abilities were described using the *Reading Comprehension Battery for Aphasia—Second Edition* (LaPointe & Horner, 1998). Although participants with aphasia could request help from the primary investigator or their significant other with comprehension of the written information provided on the experimental tasks of this study, a brief evaluation of the participants' reading skills was conducted since the experimental tasks contained written information. Finally, information was obtained regarding participants' status of attention, memory, executive functions, language, and visual spatial skills using the *Cognitive Linguistic Quick Test* (Helm-Estabrooks, 2001). A summary of the research instruments and findings from relevant studies regarding the psychometric properties and normative data of these assessments is provided in Appendix C.

#### *Participants Performance on Testing Materials*

Participant scores on the *Autonomy and Relatedness Inventory* (ARI) and the *Raven's Coloured Progressive Matrices* (RCPM) are shown in Table 7. Scores on the ARI range from 0 to 120, with higher scores denoting more positive feelings about their significant other's attitudes towards them. The ARI scores in this study sample indicated

that most participants had positive feelings about their relationships. Only three participant scores were below 80. The mean ARI scores for the participants with aphasia was 95.79 ( $SD = 10.61$ ) while the spouses without aphasia was 90.29 ( $SD = 23.89$ ), indicating that individuals with aphasia had slightly more positive feelings for their significant others' attitudes, than was felt by their significant others towards them.

Scores on the RCPM range from 0 to 36. In the sample of participants in this study scores ranged from 12 to 36 for the spouses with aphasia ( $M = 27.41$ ,  $SD = 6.57$ ) and from 26 to 36 for those without aphasia ( $M = 32.07$ ,  $SD = 3.95$ ). On average, these scores were higher than the mean scores reported in previous studies by Kertesz and McCabe (1975) for individuals with aphasia and in Kertesz and McCabe (1975) and Levinson (1959) for individuals without aphasia. This may be because of the high level of educational achievement represented in this study's sample (Basso, Capitani, & Laiacona, 1987).

Table 7

*Participant ARI and RCPM scores*

N	PWA		SO	
	ARI	RCPM	ARI	RCPM
1	82	31	105	27
2	80	36	94	36
3	98	29	81	30
4	101	30	109	34
5	89	32	84	33
6	107	24	118	36
7	99	27	120	26
8	87	30	40	34
9	108	16	96	36
10	89	29	74	36
11	95	34	83	36
12	103	31	97	26
13	116	12	113	29
14	87	27	50	30

ARI = Autonomy and Relatedness Inventory; RCPM = Raven's Coloured Progressive Matrices; PWA = person with aphasia; SO = spouse of the person with aphasia.

Results from the tests administered only to the participants with aphasia are summarized in Tables 8. Nine participants presented with fluent aphasia and five with nonfluent aphasia based on the WAB-R. WAB-R AQ scores ranged from 41.6 to 95, indicating an aphasia severity range from very mild to moderately severe. Confrontational naming abilities varied widely on the BNT from a score of 5 to 50.

Table 8

*Results from Cognitive-Linguistic Testing for Participants with Aphasia 1-7*

Assessments	Participants with Aphasia						
	1	2	3	4	5	6	7
<i>Western Aphasia Battery-Revised</i>							
Aphasia Quotient (AQ)	95	93	91.6	77.7	73.3	70.5	70
Subtests (AQ totals)							
Informational content	10	10	9	9	9	8	9
Fluency	9	9	9	6	6	4	8
Auditory verbal comprehension	9.8	9.5	9.8	8.05	8.15	8.65	6.1
Repetition	9.4	9	9.6	7.8	5.3	7.4	7.5
Naming	9.3	9	8.4	8	8.2	7.2	4.4
Aphasia type	NABW	anomic	anomic	anomic	anomic	Broca's\ transcortical motor	anomic
<i>Boston Naming Test-Second Edition</i>	46	43	36	50	34	45	10
Picture description							
“Cookie Theft” picture							
Time (in seconds)	40	97	159	40	88	198	114
MLU	22.75	9.56	10.19	8.57	13.67	1.86	18.9
Number of CIUs	87	60	104	19	31	25	128
Number of CIUs per minute	130.5	37.11	39.25	28.5	21.14	7.58	67..37
Percentage of words that are CIUs	96%	70%	64%	32%	37%	42%	68%

Table 8 (continued)

*Results from Cognitive-Linguistic Testing for Participants with Aphasia 1-7*

Assessments	Participants with Aphasia						
	1	2	3	4	5	6	7
<i>Reading Comprehension Battery for Adults-Second Edition</i>							
Subtests							
Subtest I Word-Visual	10	9	10	10	10	9	10
Subtest II Word-Auditory	10	10	10	10	10	10	10
Subtest III Word-Semantic	10	10	10	9	10	10	10
Subtest VIII Paragraph-Factual	10	9	9	10	9	10	8
Subtest IX Paragraph-Inferential	10	10	9	10	10	8	6
<i>Cognitive-Linguistic Quick Test</i>							
Composite Severity Rating	4	4	3.6	3.2	2.6	2.2	3.2
Subtests (severity ratings)							
Attention	4	4	4	4	3	3	4
Memory	4	4	3	2	2	2	2
Executive Functioning	4	4	4	4	3	1	4
Language	4	4	3	2	2	2	2
Visuospatial Skills	4	4	4	4	3	3	4

CIU=correct information unit (Nicholas & Brookshire, 1993); MLU=mean length of utterance (Florance, 1981); NABW= not aphasic by Western Aphasia Battery (Fromm et al., 2017)

Table 8 (continued)

## Results from Cognitive-Linguistic Testing for Participants with Aphasia 8-14

Assessments	Participants with Aphasia							
	8	9	10	11	12	13	14	
<i>Western Aphasia Battery-Revised</i>								
Aphasia Quotient (AQ)	67.9	66.5	66.5	58.7	55.8	49.8	41.6	
Subtests (AQ totals)								
Informational content	9	6	8	7	8	5	5	
Fluency	6	4	5	5	4	4	4	
Auditory verbal comprehension	8.25	7	8.45	8.25	9.7	8.7	6.6	
Repetition	6	5.8	5.6	4.4	1.5	2.2	2.7	
Naming	4.7	4.2	6.2	4.7	4.7	5	2.5	
Aphasia type	conduction	Broca's	anomic	anomic	Broca's	Broca's	Broca's	
<i>Boston Naming Test-Second Edition</i>	24	19	16	10	3	24	5	
Picture description								
“Cookie Theft” picture								
Time (in seconds)	91	52	26	353	147	90	---	
MLU	10.36	3.14	3.75	3.61	4.82	1.17	---	
Number of CIUs	31	8	7	11	7	4	---	
Number of CIUs per minute	20.44	9.23	16.15	1.87	2.86	2.67	---	
Percentage of words that are CIUs	27%	36%	47%	4%	13%	57%	---	



Table 8 (continued)

*Results from Cognitive-Linguistic Testing for Participants with Aphasia 8-14*

Assessments	Participants with Aphasia						
	8	9	10	11	12	13	14
<i>Reading Comprehension Battery for Adults-Second Edition</i>							
Subtests							
Subtest I Word-Visual	10	9	9	10	10	9	9
Subtest II Word-Auditory	10	10	10	10	10	10	9
Subtest III Word-Semantic	10	8	9	10	10	10	10
Subtest VIII Paragraph-Factual	10	5	6	8	10	8	3
Subtest IX Paragraph-Inferential	7	4	7	7	10	5	7
<i>Cognitive-Linguistic Quick Test</i>							
Composite Severity Rating	3.4	2.4	3.2	3.2	3.4	1.4	3
Subtests (severity ratings)							
Attention	4	3	4	4	4	2	4
Memory	3	2	2	2	3	1	2
Executive Functioning	4	2	4	4	4	1	4
Language	2	2	2	2	2	1	1
Visuospatial Skills	4	3	4	4	4	2	4

CIU=correct information unit (Nicholas & Brookshire, 1993); MLU=mean length of utterance (Florance, 1981); NABW= not aphasic by Western Aphasia Battery (Fromm et al., 2017)

Except for the least impaired participant in the study (PWA-1), all participants performed below the cutoff points established by Nicholas and Brookshire (1993) for normal performance levels on the picture description task. The discourse sample for one participant (PWA-14) could not be analyzed due to equipment failure during data collection. However, his content and fluency scores on the WAB-R were low, 5 and 4, respectively, indicating that he has moderate-to-severe impairments using verbal communication to describe pictures. His low spontaneous speech subtest scores on the WAB-R were greatly impacted by his impaired naming abilities; he scored the lowest of all the participants on the BNT with a score of 5. Reading comprehension at the word level was relatively spared in the study's sample; however, about one-third of the participants revealed moderate deficits on the paragraph comprehension test items in Subtests VIII and IX of the RCBA-2. Composite severity rating of the CLQT were WNL for three participants, mild for eight, moderate for two, and severe for one participant. In general, the most impaired cognitive domains in the sample were Language and Memory.

### *Experimental Tasks*

The experimental tasks of this study consisted of two joint-decision making activities. The tasks were selected for their capacity to generate 'thoughtful' and 'direct' decisions (Jaccard et al., 1989). It was assumed that the participants would be familiar with the tasks but that they would have no particular expertise in completing them and would not have ever worked on them together prior to this study. Thus, the experimental tasks represent a novel decision-making activity for the couples, in which prior collaborations with each other would not lead them to an immediate or agreed upon decision.

The two experimental tasks were the “Airplane Crash” (Kelly, Byrne, & Holler, 2011) and “Stranded in the Desert” (Watson, Mulford, & Vallee, 1981) (see Appendices D and E). Both are types of “survival” tasks and were administered, one after the other, in the same way. First, the primary investigator read a fictitious scenario to the couple, while encouraging them to imagine themselves in the scenario and to consider how they would survive the predicament. In the Airplane Crash, the couple was told that they had just crashed landed in snow-covered Northern Canada during the winter season. Their goal was to signal their whereabouts to the search-and-rescue team and keep warm. In the Stranded in the Desert task, they were asked to image that they were on an overland tour in the Simpson Desert when they had a front-tire blowout that caused them to wreck and total their automobile. Without any means of transportation, the participants’ goal was to figure out how to make it out of the desert alive. The primary investigator read the scenarios to the couples as many times as needed (usually just once) and answered questions about the content of the scenario based on information expressly stated in the script. A written copy of the scenarios was also given to the couples to use during the completion of the tasks.

Second, after the primary investigator read the scenarios to the couples and they confirmed that they understood the situation, a list of items was given to each spouse from which they individually chose six items and ranked them hierarchically in order of their worth in helping them survive. Spouses were instructed to work on the individual list alone and not to discuss their ideas or item selections with each other. The primary investigator provided assistance to any of the participants with aphasia who needed help reading the items on the list or writing down their responses. The primary investigator

did not provide information regarding the value or utility of the items; however, if a participant was unsure what an item was, the primary investigator provided a definition but did not discuss how the item could be used in the survival task.

Third, after completing the individual list, the spouses were instructed to develop an agreed upon list of six hierarchically ranked items; at this point, the spouses were permitted to share their responses and discuss their ideas. While working on the task together, the primary investigator left the room and the couple's interactions were audio- and video-recorded. Except for answering questions regarding the instructions of the task, the primary investigator provided no assistance to the couples while they jointly worked on the tasks.

Initially, it was intended to randomize the order in which the tasks were administered. However, because the script for the Stranded in the Desert scenario has significantly fewer words than that of the Airplane Crash, a decision was made to administer the Stranded in the Desert task first so that the participants with aphasia would have less information to comprehend when beginning the tasks. This decision was made early in the study and therefore all couples completed the tasks in the same order.

#### *Data Collection*

Data collection for this study was obtained at several locations, including the participants' homes ( $N = 6$ ), University of Kentucky Communication Sciences and Disorders Clinic ( $N = 7$ ), Douglas Community Center of Louisville ( $N = 1$ ), and Daniel Drake Center for Post-Acute Care ( $N = 1$ ).

### *Transcription of the Data*

All couples' communicative interactions while jointly completing the two survival tasks were transcribed verbatim by the primary investigator or a research assistant trained to transcribe conversational discourse. All transcriptions were reviewed for accuracy.

### *Coding Procedures*

Transcriptions from the couples' communicative interactions during the experimental tasks were divided into speaker's 'moves' and 'turns,' as described in Chapter 3, by the primary investigator. All moves were coded for speech functions following procedures described by Eggins and Slade (2004) and outlined in Chapter 3. Coding was primarily based on the transcriptions of the audio files; however, video segments were viewed at times to determine if the participants were communicating *via* non-linguistic channels, such as drawing or pointing. This occurred after lengthy periods of silence were observed in the audio files or when the interactions suggested that the spouses were communicating with non-linguistic modalities, such as a spouse reacting to another spouse, who did not verbally communicate a proposition. When possible, the non-verbal interactions were coded as well; for example, answering a question by pointing to an item on the list. All coding was completed by the primary investigator.

### *Reliability*

To estimate the interrater reliability of the speech function codes, over twenty percent of the transcriptions (6 of 28) were randomly selected and coded by a research assistant, who was trained by the primary investigator on coding moves according to speech function classes. The primary investigator and the research assistant worked

independently when coding the transcriptions, except during training periods. The code agreements were compared on a point-to-point base for each transcription selected for interrater reliability using the following formula:  $[(\text{total number of agreements} / \text{total number of possible agreements}) \times 100]$ . The mean average agreement was eighty-four percent and ranged from sixty-nine percent to ninety-three percent; discrepancies between the primary investigator and the independent observer were discussed and resolved. Additionally, the primary investigator double checked all codes for accuracy when entering the data into Microsoft Excel 2010 before importing the data into SAS version 9.4 for analysis.

### *Research Questions*

Research questions for this study were influenced based on the previous work by Armstrong et al. (2013). The primary study questions are:

*Question 1:* Do individuals with aphasia differ from their significant others in regards to the total number of speaker moves produced when jointly making a decision?

*Question 2:* Does the percentage of opening and sustaining moves differ between persons with aphasia and their significant others when jointly making a decision?

*Question 3:* Does the percentage of continuing and reacting moves differ between persons with aphasia and their significant others when jointly making a decision?

*Question 4:* Does the percentage of supporting and confronting reactions differ between persons with aphasia and their significant others when jointly making a decision?

*Question 5:* What speech function classes do the spouses with and without aphasia use most frequently when jointly making a decision, and what function do they serve in the couples' collaboration?

Figure 2 illustrates the relationship between Research Questions 1 through 4 and the speech function network. Research Question 1 addresses the difference in the number of moves produced by the groups in this study and is depicted at the far left side of the diagram. Research Question 2 is concerned with the difference in the percentage of opening versus sustaining moves and is depicted next in the diagram when moving from left to right. Research Question 3 is concerned with the difference in the percentage of continuing versus reacting moves made by the groups in this study and is shown next in the diagram. Research Question 4 addresses the difference in supporting and confronting reactions between the two groups in this study and is depicted at the far right side of the diagram.

## Relationship between Categories in the Speech Function Network and the Research Questions

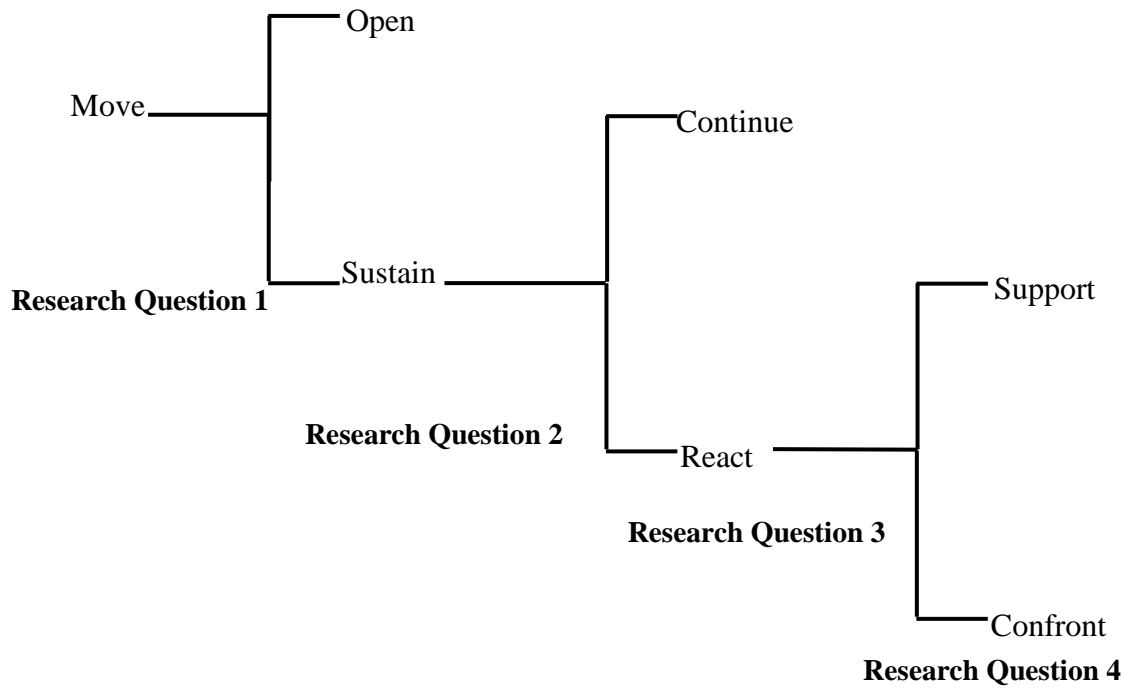


Figure 2: Diagram depicting the relationship between the Research Questions and categories of move types in the Speech Function Network. Adapted from Armstrong et al. (2013).

Question 1 addresses the relative contributions of the spouses in terms of the number of moves that they made when completing the joint decision-making tasks in this study. Dominant and incidental interactants can be distinguished by the number of moves they produce in a conversation (Eggs & Slade, 2004). Question 1 examines whether aphasia affects ‘who holds the conversational floor’ in joint decision-making conversations between married couples. Only one study known to the author has compared the number of moves produced by spouses with and without aphasia (Armstrong et al., 2013). The findings of this study are limited due to a small sample size of just one couple.



In question 2, the issue of whether individuals with aphasia initiate topics of discussion in joint-decision making conversations is addressed. Most of the conversation-based research to date has shown that contributions by individuals with aphasia are largely restricted to providing answers to questions (Doyle et al., 1994; Hersh et al., 2016; Wilcox et al., 2005). This suggests that individuals with aphasia may not make as many opening moves in joint-decision making conversations, compared to their non-aphasic husbands or wives.

Question 3 is concerned with how conversational topics in joint-decision making discussions are sustained between couples affected by aphasia. Does the person with aphasia build on their previous comments and ideas or are they primarily reactors to topics introduced by their spouses? Previous studies found that people with aphasia make fewer continuing moves than their non-aphasic conversational partners; however, findings are limited due to small sample sizes and a diversity of speaking partners (Armstrong et al., 2013; Hersh et al., 2016).

Question 4 explores the issue of whether aphasia affects the conversation style of the spouses in terms of the level of assertiveness or support they display in response to questions and comments made by their spouse. Armstrong et al. (2013) found no difference between the proportion of supporting and confronting reactions produced by a couple in their study.

Question 5 examines which speech functions classes are most frequently employed by the spouses with and without aphasia and what role the speech functions serve in the spouses' collaborations. This information is useful for describing similarities and differences in the couples' communicative interactions and providing insights into

how couples negotiate meanings when collaboratively making a decision. Hersh et al. (2016) is the only known study to provide a detailed description of the speech functions used in conversations between people with and without aphasia. However, findings from this study may not be applicable to the present study because the study was limited to examining the interactions between nurses and acute stroke inpatients.

### *Data Analysis*

The data from the two experimental tasks for each couple were combined prior to conducting the statistical analysis. This helped to ensure that enough speech samples were collected to perform the analysis, particularly in the case of a couple independently rating the survival items in the same order or a spouse with aphasia producing a limited number of utterances on one of the tasks.

Individual speech functions were classified into six types of moves (opening, sustaining, continuing, reacting, supporting, and confronting) and frequency data were converted to proportions for addressing Research Questions 2 through 4. This involved calculating the total number of opening moves in total moves, the total number of continuing moves in sustaining moves, and the total number of supporting moves in reacting moves for Research Questions 2, 3, and 4, respectively, for each sample. As will be discussed in the next chapter, approximately 1% of utterances were unclassifiable. The proportions obtained for addressing the Research Questions 2 through 4 were based on total classifiable moves.

Research Questions 1 through 4 were specified prior to performing any tests of significance. Paired t-tests were conducted to compare the variables of interest in

Research Questions 1 through 4. For all tests of significance, the alpha error level was set at  $p = .05$ . Analyses were conducted in SAS version 9.4 (SAS Institute, Cary, NC).

Follow-up analyses were performed to calculate Pearson product-moment correlations between the outcomes in Research Questions 1 through 4 and three covariates (i.e., ARI scores for spouses with aphasia, ARI scores for spouses without aphasia, and the months post-aphasia onset).

Research Question 5 was addressed by quantifying the total speech function classes demonstrated by the spouses with and without aphasia and then summarizing the data in a description.

## Chapter Five

### Results

This chapter explores the subject of how couples jointly make a decision on a novel task when one of the spouses has aphasia and the other one does not. It provides findings relevant to understanding which spouse holds the conversational floor in collaborative decision-making, how spouses co-construct and negotiate meanings in joint decision-making conversations, and whether one of the spouses is more supportive or confrontational to the ideas, questions, and suggestions posed by the other spouse.

The chapter begins with a summary on the amount of time the couples spent completing the experimental tasks of this study. Next, answers to the first four Research Questions are provided, followed by results for the correlations between the Research Question outcomes and participant factors (i.e., spouses' ARI scores and months post-onset of aphasia). Finally, a descriptive summary of the speech function analysis data is provided for answering Research Question 5.

Overall, the results showed that spouses without aphasia made more moves and had more say in what ideas were discussed in the decision-making process. By contrast, the spouses with aphasia provided fewer justifications and explanations for their ideas, made more passive and supportive responses to comments provided by the other spouse, and were interrupted more when speaking. Despite these differences, similarities were identified in the patterns of speech function use between the spouses, and in general, spouses were supportive in their interactions with each other.

### *Amount of Time Couples Spent Completing Experimental Tasks*

The amount of time the couples took to complete the tasks associated with this study ranged from five minutes and six seconds (00:05:06) to sixteen minutes and twenty-five seconds (00:16:25) for the Stranded in the Desert task and three minutes and fifty-six seconds (00:03:56) to ten minutes and twenty one-seconds (00:10:21) for the Airplane Crash (see Appendix F). When the times it took each couple to complete both experimental tasks were summed, the total amount of time spent completing the tasks ranged from ten minutes and twenty-four seconds (00:10:24) to twenty-four minutes and thirty-nine seconds (00:24:39). Studies in aphasia research on conversation discourse recommend using three to ten minute samples for analyzing conversations (Boles & Bombard, 1998; Correll, van Steenbrugge, & Scholten, 2010). The duration of the samples analyzed in this study exceeded this recommendation.

### *Research Question 1*

This question asks whether the average number of speaker's moves differ between spouses with aphasia and those without aphasia when jointly making a decision. A paired sample t-test was conducted to compare the mean number of moves produced by the spouses with aphasia and the spouses without aphasia. There was a significant difference ( $t(13) = -4.27, p = .0009$ ) in the number of moves made by spouses with aphasia ( $M = 97.38, SD = 43.83$ ) and those without ( $M = 146.38, SD = 62.30$ ). These results showed that spouses with aphasia produced fewer speaking moves ( $M = -49; SD = 42.97$ ) than their significant others. Specifically, the mean difference ( $M = -49, 95\% CI - 73.81 - -24.19$ ) suggests that spouses without aphasia, on average, produce about fifty

percent more moves than their spouses with aphasia in joint decision-making conversations.

Figure 3 illustrates group means in percentages for the dependent variables associated with Research Questions 2 through 4.

**Group Mean Percentages for Dependent Variables of Research Questions 2-4**

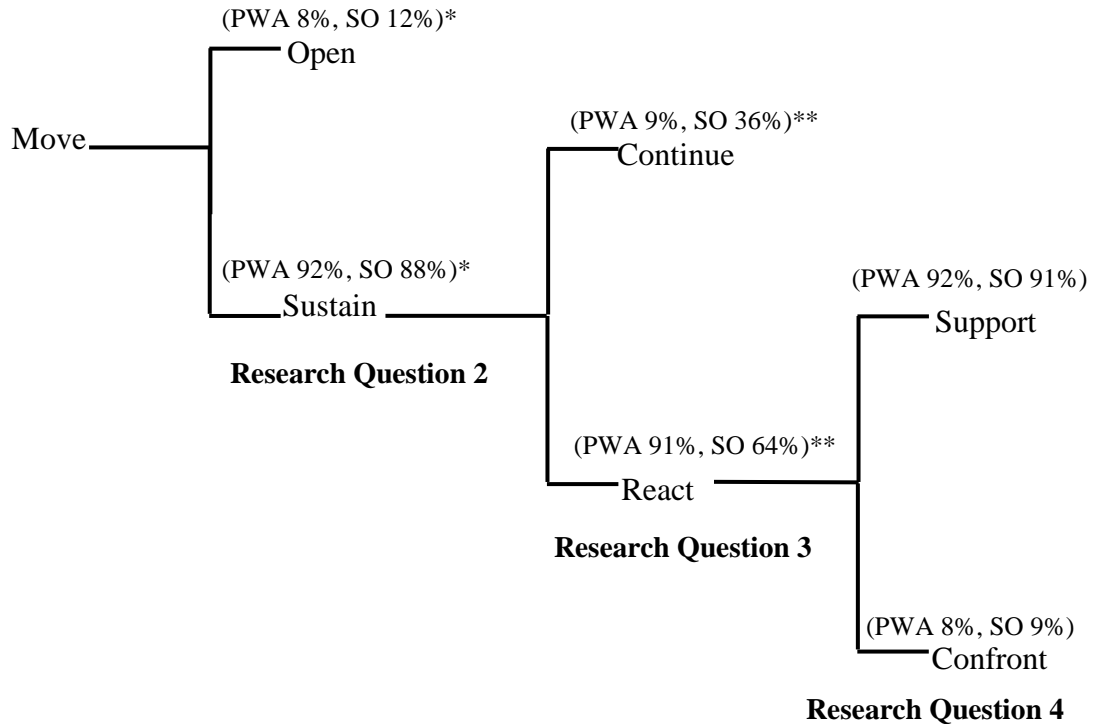


Figure 3: Diagram depicting mean proportions of opening and sustaining moves in total moves (Research Question 2), continuing and reacting moves in sustaining moves (Research Question 3), and supporting and confronting moves in reacting moves (Research Question 4) by spouses with aphasia (PWA) and spouses without aphasia (SO). Note: \* indicates  $p < .05$  and \*\* indicates  $p < .001$  for comparison of mean proportions for PWA and SO. Adapted from the Speech Function Network in Armstrong et al. (2013).

*Research Question 2*

This question asks whether spouses with and without aphasia differ in terms of the percentage of opening and sustaining moves they produce in collaborative decision-making conversations. A paired sample t-test of the mean proportions of opening moves

in total moves made by spouses with aphasia ( $M = .08, SD = .043$ ) versus spouses without aphasia ( $M = .12, SD = .04$ ) was marginally significant ( $t(13) = -2.70, p = .02$ ), indicating that the proportion of opening moves individuals with aphasia made was smaller ( $M = -.04, SD = .05$ ) compared to those made by their significant others. The results showed that people with aphasia make about four percent fewer opening moves in their total moves ( $-.04, CI -.07 - -.007$ ) compared to their spouses when engaged in a decision-making task. The results also showed that both groups produce substantially more sustaining moves than opening moves (see Figures 3 & 4).

#### Mean Proportions of Opening and Sustaining Moves by Spouse Type

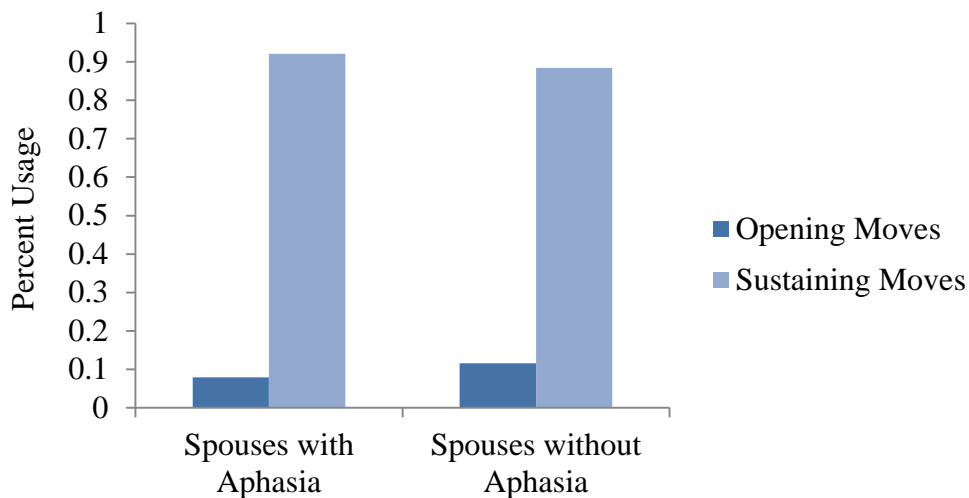


Figure 4. Proportions of opening and sustaining moves in total moves made by spouses with and without aphasia.

#### Research Question 3

This question is concerned with identifying differences in how individuals with aphasia and their non-aphasic spouses maintain conversations through sustaining moves. Specifically, it asks whether the percentages of continuing and reacting moves differ between the spouses with and without aphasia. A paired sample t-test was performed to compare the mean proportion of continuing moves in sustaining moves for the two

groups of spouses. A highly significant difference ( $t(13) = -4.93, p = .0003$ ) was identified in the mean proportions of continuing moves produced by the individuals with aphasia ( $M = .09, SD = .08$ ) compared to their spouses without aphasia ( $M = .36, SD = .14$ ). The difference ( $M = -.27, SD = .20$ ) in the proportions of continuing moves produced by the spouses suggest that spouses of individuals with aphasia make on average four times the number of continuing moves in their sustaining moves as their spouses with aphasia during decision-making conversations. The figure provided below highlights the discrepancies in the mean proportions of continuing and reacting moves between the spouse types. As can be seen, over ninety percent on sustaining moves made the spouses with aphasia were reactions ( $M = .91, SD = .08$ ) compared to sixty-four percent ( $M = .64, SD = .14$ ) performed by the spouses without aphasia (see Figures 3 & 5).

#### Mean Proportions of Continuing and Reacting Moves by Spouse Type

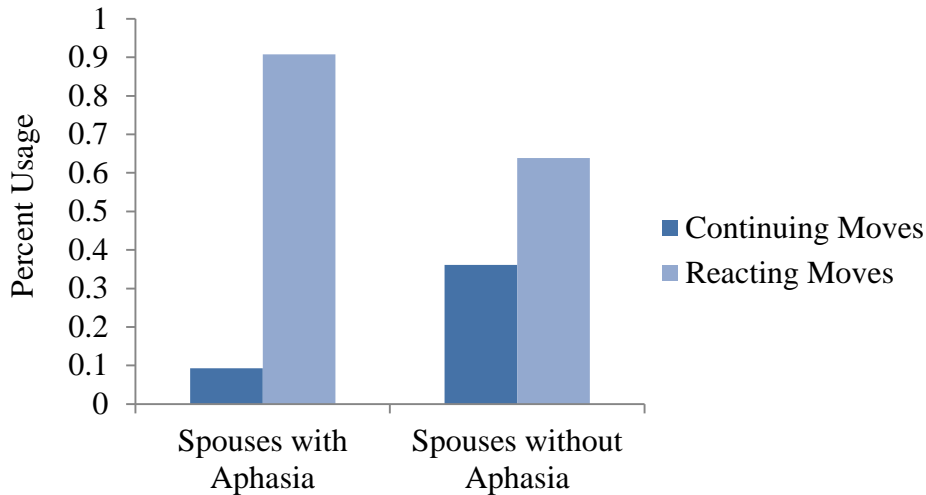


Figure 5. Proportions of continuing and reacting moves in sustaining moves made by spouses with and without aphasia.



#### *Research Question 4*

This question is concerned with differences in the proportions of supporting and confronting reactions in the two groups of spouses. Mean proportions of supporting moves in reacting moves for the group of spouses with aphasia ( $M = .92$ ,  $SD = .06$ ) and the group without aphasia ( $M = .91$ ,  $SD = .07$ ) did not differ significantly ( $t(13)$ ,  $.28$ ,  $p = .79$ ). The results suggest that spouses with and without aphasia, on average, produce approximately the same proportion (mean group difference =  $.004$ ,  $SD = .05$ ) of supporting and confronting reactions to ideas, comments, and questions posed by their significant others in collaborative decision-making communication. Over ninety percent of the reacting moves produced by both groups were supportive, indicating that the couples' interactions were generally cooperative and that challenges to propositions were relatively rare in the couples' decision-making negotiations.

#### *Correlations between Research Questions 1-4 Outcomes and Participant Factors*

Pearson correlations were calculated to examine the relationships between the outcomes in each of the four Research Questions (e.g., differences between spouses in total moves for Research Question 1, etc.) and three covariates (i.e., ARI scores for spouses with aphasia, ARI scores for spouses without aphasia, and the months post-aphasia onset). This resulted in a total of twelve Pearson product-moment correlations coefficients. No significant correlations were identified between any of the Research Question outcomes and the covariates (see Appendix G). These findings suggest that the spouses' communication behaviors identified in the Research Questions were not strongly influenced by the quality of the spouses' marital relationships or the length of time a spouse had aphasia.

### *Research Question 5*

This question is concerned with examining and comparing the speech function classes most frequently employed by the groups of spouses in order to capture a more comprehensive picture of the nature of the couple's joint decision-making communication. A descriptive summary of the couples' speech function usage is provided below.

Overall, several similarities and differences in the usage of speech functions were identified between the groups. Similarities included the pattern of opening moves and use of elaborations in continuing moves. Differences included the proportions of appending versus prolonging moves, registering moves, developing moves, and types of tracking moves.

Table 9 is a quantification of the speech function classes demonstrated by the two groups of spouses on the experimental tasks. The descriptive summary of the speech functions is divided into the five sections: (1) Total Turns and Moves, (2) Opening Moves, (3) Continuing Moves, (4) Responding Moves, and (5) Rejoinder Moves.

Table 9

*Summary of Speech Functions Classes Demonstrated by the Spouses with and without Aphasia*

<b>Speech Function Classes</b>	<b>SO Desert</b>	<b>SO Airplane</b>	<b>PWA Desert</b>	<b>PWA Airplane</b>	<b>SO Total</b>	<b>PWA Total</b>
no. of turns	629	558	654	555	<b>1187</b>	<b>1209</b>
no. of moves	1148	901	745	618	<b>2049</b>	<b>1363</b>
Unclassifiable moves	9	10	16	11	<b>19</b>	<b>27</b>
<b>Open</b>						
attend	10	4	1	2	<b>14</b>	<b>3</b>
I:statement:fact	36	34	8	16	<b>70</b>	<b>24</b>
I:statement:opinion	17	19	21	17	<b>36</b>	<b>38</b>
I:question:opinion:open	17	19	15	10	<b>36</b>	<b>25</b>
I:question:opinion:closed	5	4	1	3	<b>9</b>	<b>4</b>
I:question:fact:open	13	16	7	6	<b>29</b>	<b>13</b>
I:question:fact:closed	1	4	1	0	<b>5</b>	<b>1</b>
I:offer	2	1	0	0	<b>3</b>	<b>0</b>
I:command	7	3	3	1	<b>10</b>	<b>4</b>
<i>total open</i>	108	104	57	55	<b>212</b>	<b>112</b>
<b>Continue</b>					<b>0</b>	<b>0</b>
monitor	0	0	0	0	<b>0</b>	<b>0</b>
prolong:elaborate	257	151	41	23	<b>408</b>	<b>64</b>
prolong:extend	39	36	5	4	<b>75</b>	<b>9</b>
prolong:enhance	1	0	0	0	<b>1</b>	<b>0</b>
append:elaborate	102	66	28	19	<b>168</b>	<b>47</b>
append:extend	9	8	4	9	<b>17</b>	<b>13</b>
append:enhance	5	0	0	0	<b>5</b>	<b>0</b>
<i>total continue</i>	413	261	78	55	<b>674</b>	<b>133</b>
<b>React:responding</b>					<b>0</b>	<b>0</b>
support:develop:elaborate	82	69	47	44	<b>151</b>	<b>91</b>
support:develop:extend	23	11	22	5	<b>34</b>	<b>27</b>
support:develop:enhance	1	0	0	0	<b>1</b>	<b>0</b>
support:engage	0	0	1	1	<b>0</b>	<b>2</b>
support:register	35	36	105	76	<b>71</b>	<b>181</b>
support:reply:accept	0	0	0	1	<b>0</b>	<b>1</b>
support:reply:comply	2	1	5	2	<b>3</b>	<b>7</b>
support:reply:agree	46	48	81	68	<b>94</b>	<b>149</b>
support:reply:answer	61	56	82	81	<b>117</b>	<b>163</b>
support:reply:acknowledge	1	2	10	3	<b>3</b>	<b>13</b>
support:reply:affirm	12	9	76	72	<b>21</b>	<b>148</b>
<i>support total</i>	263	232	429	353	<b>495</b>	<b>782</b>

Table 9 (continued)

*Summary of Speech Functions Classes Demonstrated by the Spouses with and without Aphasia*

<b>Speech Function Classes</b>	<b>SO Desert</b>	<b>SO Airplane</b>	<b>PWA Desert</b>	<b>PWA Airplane</b>	<b>SO Total</b>	<b>PWA Total</b>
confront:disengage	0	0	0	0	0	0
confront:reply:decline	0	0	0	0	0	0
confront:reply:non-comply	0	0	0	1	0	1
confront:reply:disagree	6	1	6	15	7	21
confront:reply:withhold	3	1	4	6	4	10
confront:reply:disavow	3	0	2	1	3	3
confront:reply:contradict	7	4	8	7	11	15
<i>confront total</i>	19	6	20	30	25	50
<i>total respond</i>	282	238	449	383	520	832
<b>React:rejoinder</b>					0	0
support:track:check	7	3	26	16	10	42
support:track:confirm	66	66	10	6	132	16
support:track:clarify	144	105	58	42	249	100
support:track:probe	52	62	7	13	114	20
support:response:resolve	10	1	6	7	11	13
support:response:repair	18	6	12	2	24	14
support:response:acquiesce	2	5	6	6	7	12
<i>support total</i>	299	248	125	92	547	217
confront:challenge:detach	3	2	0	0	5	0
confront:challenge:rebound	15	19	6	8	34	14
confront:challenge:counter	2	4	3	6	6	9
confront:response:unresolved	5	0	0	0	5	0
confront:response:refute	5	1	5	6	6	11
confront:response:re-challenge	7	14	6	2	21	8
<i>confront total</i>	37	40	20	22	77	42
<i>total rejoinder</i>	336	288	145	114	624	259

I=initiate; PWA= spouses with aphasia group; SO = spouses without aphasia group

#### *Total Turns and Moves*

As shown at the top of Table 10, the group of spouses with aphasia produced slightly more total speaking turns than the group of spouses without aphasia (PWA = 1209, SO = 1187). However, considering that these speaking turns represent the total

number of speaking turns used by the spouses in both tasks (i.e., a total of 28 task administrations), the group difference is small (on average, less than one extra speaking turn per task was used by the spouses with aphasia, i.e.,  $1209 - 1187 = 22$ ). The slight difference in the quantity of speaking turns produced between the groups of spouses is not surprising given that the tasks were completed in the context of a dyadic conversation, where turns are generally exchanged *back and forth* between interactants. However, an apparent difference in the total number of moves between the groups of spouses can be seen (PWA = 1363; SO = 2049) in the table. One thing to note is that both groups produced more moves on the Stranded in the Desert task than on the Airplane Crash. This difference is likely due to a minor difference in the nature of the tasks. In the Airplane Crash, the participants were told that search-and-rescue teams were coming; so, the aim of the task was restricted to decisions about how to keep warm and capture the attention of the search-and-rescue team. By contrast, the Stranded in the Desert task did not indicate whether a rescue team was in pursuit; therefore, the couples had to decide whether to build shelter and wait for a rescue team or attempt to hike out of the desert. This required extra decision-making for the couples as they sometimes disagreed on which course of action was the better alternative.

There were relatively few unclassifiable moves produced by the speakers on the experimental tasks (46 out of 3412 total spouse moves or 1.3%). Most of these were interrupted utterances or utterances that failed to communicate a comprehensible message. In a few instances, speakers commanded their spouses to write down their final decisions on a form used to record their decision-making responses. These commands were produced at the end of an exchange and, thus, did not function as an opening move.

In the speech function network used in this study, commands are a class of opening moves; therefore, the command to write down the final decision did not truly fit into one of the speech function classes used in this study. However since the occurrence of these commands was highly infrequent, it did not warrant developing a new speech function class for the study.

### *Opening Moves*

An array of opening moves was demonstrated by both groups. Opening moves were generally used to initiate a conversation around a proposition. Both groups introduced propositions more by initiating statements than asking questions. On average, fifty-five percent of the opening moves produced by the spouses with aphasia were statements (62 of 112) and thirty-eight percent were questions (43 of 112), compared to the group of spouses without aphasia who initiated a statement fifty percent of the time (106 of 212) and asked an initiating question thirty-seven percent of the time (79 of 212). Attending, offering, and commanding opens were used slightly more by the spouses without aphasia compared to the group with aphasia. In summary, the spouses with aphasia used a variety of opening moves which was similar to the pattern of opening moves represented in the group of spouses without aphasia.

### *Continuing Moves*

Both groups primarily made continuing moves in the form of elaborations and extensions. Eighty-three percent of the continuing moves made by the spouses with aphasia were elaborations (111 of 133) and seventeen percent were extensions (22 of 133). These percentages were similar for the spouses without aphasia, namely eighty-five percent of their continuing moves were elaborations (576 of 674) and fourteen

percent were extensions (91 of 674). The high proportion of elaborations suggests both groups tended to repeat ideas that they have already said rather than provide additional, contrasting, or qualifying information in their continuing moves. In many cases, the individuals without aphasia made continuing elaborations to ensure that their aphasic spouses understood them, as illustrated in example 5.1, or to try to persuade their significant other to accept their proposition, as shown in example 5.2:

Example 5.1:

SO-14: I don't think we need a compass 'cause we can't go anywhere  
[react:rejoin:confront:challenge:rebound]

We have to stay right there; we can't go anywhere.  
[continue:prolong:elaborate]

Example 5.2:

SO-5: No, no, no, but you don't want to waste anything...  
[react:rejoin:confront:response:refute]

You're going to get water out of this [case of canned fruit].  
[continue:prolong:extend]

Your fruit will give you juice and water.  
[continue:prolong:elaborate]

Continuing moves are also classified as monitoring, prolonging, and appending. No monitoring moves were made by the participants in this study. Spouses with aphasia demonstrated proportionately greater use of appending moves and less use of prolonging moves compared to the spouses without aphasia. For instance, fifty-five percent of the continuing moves produced by the spouses with aphasia were prolonging moves (73 of 133), compared to seventy-two percent for the spouses without aphasia (484 of 674). Use of appending moves was forty-five percent for the spouses with aphasia (60 of 133) and twenty-eight percent for the spouses without aphasia (190 of 674). The difference

between the proportions of prolonging and appending moves suggests that spouses with aphasia were interrupted frequently when they spoke. That is, since appending moves occur after interference by another speaker, the high proportion of appending moves made by the individuals with aphasia (45%) indicates that their spouses frequently interrupted them while they were talking or did not allow them a chance to finish communicating their message before taking a turn in the conversation.

### *Responding Moves*

Both groups produced mostly replies when responding to the statements and questions posed by their significant others. Sixty-four percent of the responses produced by the spouses with aphasia were replies (531 of 832), compared to fifty-one percent produced by their significant others (260 of 520). Both groups demonstrated a wide variety of responding replies including, agreeing, answering, disagreeing, and contradicting, among others. Of note, an observed difference between the groups was evident in terms of the percentage of developing moves produced by the spouses with aphasia (15%) and those without aphasia (38%). Moreover, individuals with aphasia made proportionally more registering responses (23%) than their spouses (14%), indicating that the individuals with aphasia played a more passive role in the conversations compared to their spouses.

### *Rejoinder Moves*

The most frequent classification of rejoinders demonstrated by the groups in this study was tracking. Sixty-nine percent of rejoinders produced by the spouses with aphasia (178 of 259), and eighty-one percent produced by the spouses without aphasia (505 of 624), were classified as tracking moves. Tracking moves were frequently utilized



to increase understanding of a prior speaker's move and establish agreement. Both groups used clarifying questions more than other available tracking moves in order to better understand the reasoning behind their spouses' comments. Thirty-nine percent and forty percent of rejoinders were clarifying moves for the spouses with and without aphasia, respectively. The second most frequently used tracking move was probing. Probing questions were mostly used to establish confirmation of a new idea or suggestion from the other spouse within an ongoing exchange. Approximately seven percent of the total rejoinder moves made by spouses with aphasia were probing questions, compared to eighteen percent made by the spouses without aphasia.

Both groups also used tracking moves to ensure that they understood the content of their spouses' messages. The spouses with aphasia used more checking moves (i.e., requests for repetitions) whereas the spouses without aphasia made more confirming moves (i.e., repeated heard information back to the spouses for confirmation).

When spouses challenged their significant other's tracking moves, they generally did so by questioning the veracity or utility of their choices through making a rebounding move or providing an alternative option by making a re-challenging move. Although acquiescing responses were relatively rare (5% of rejoinders for PWA and 1% for SO), it is noteworthy that when information was acceded, it tended to be done by persons with aphasia rather than their spouses.

The summary of rejoinder moves showed that tracking moves were one of the most frequently employed communication techniques for negotiating meanings in the couples' joint decision-making interactions. These moves were used to understand the content of one's message or reasoning for one's decision or to confirm agreement

between the spouses. Individuals with aphasia tended to ask for repetitions while their spouses tended to ask more confirming questions to ensure comprehension of the provided information.

### *Summary*

The findings from the Research Questions showed significant differences in the communicative behaviors between the spouses when making collaborative decisions. The spouses without aphasia made more speaking moves, and therefore, received more airspace in the conversations. Spouses without aphasia also played a more dominate role in the selection of topics and ideas discussed in the conversations by making more opening moves. A large and significant difference in the proportions of continuing moves in sustaining moves between the groups of spouses was identified. This difference suggests that spouses without aphasia provide more explanations and justifications for their ideas than the spouses with aphasia. Moreover, nearly fifty percent of the continuing moves made by individuals with aphasia were appending moves, suggesting that they are interrupted by their spouses when they speak. A difference was also noted in the types of reacting moves made by the two groups. Individuals with aphasia made more registering moves indicating a more passive role in the conversation compared to their spouses who made more developing moves that tended to shape the nature and direction of the conversation. Both groups frequently used clarifying and, to a lesser extent, rebounding questions to demand that their spouses provide a justification for their ideas and decisions. In general, the spouses' conversations were largely supportive, disagreements quickly resolved, and consensus nearly always achieved. Evidence that the quality of the spouses' relationship or the length of aphasia onset might influence

spouses' communicative behaviors in decision-making discourse was not found in this study.

## Chapter Six

### Discussion

This is the first study to examine how couples affected by aphasia collaboratively make decisions. While the results from this investigation provide support for previous findings in the literature (Armstrong et al., 2013; Doyle et al., 1994; Hersh et al., 2016; Krueger & Smith, 1982; Wilcox et al., 2005), they also extend those findings in several areas and identify unique factors related to marital decision-making in couples affected by aphasia.

Studies on the nature of communication involving individuals with and without aphasia have reported that people with aphasia primarily produced statements in response to requests and rarely self-initiate assertions or ask questions (Doyle et al., 1994; Hersh et al., 2016; Wilcox et al., 2005). While the present study found that most of the utterances produced by the spouses with aphasia on the experimental tasks were reactions, the spouses also demonstrated a wider variety of speech functions than previously described in much of the literature, including asking questions and making opening statements. These findings suggest that the communication and linguistic behaviors of people with aphasia may vary significantly across conversational contexts.

The present study identified several similarities and differences in the patterns of speech functions used by the groups of spouses. As will be shown momentarily, similarity between spouses is not necessarily a positive quality because of the potential risk that individuals with aphasia may not be receiving the communicative support needed to fully participate in the decision-making process. Thus, in trying to understand the nature of the communicative interactions between spouses with and without aphasia,

it is important not only to identify similarities and differences between the spouses' interactions but also describe how these similarities and differences may facilitate and hinder joint decision-making. Results from this study identified three relevant similarities in the couples' interactions on the experimental tasks.

First, both groups used more opening statements than questions for initiating a conversation around a proposition. This suggests that the participants were more inclined to introduce their own ideas into the discussion than seek out the thoughts of their significant other. In previous studies examining the nature of dyadic decision-making in married couples (Krueger, 1983; Krueger, 1985; Krueger & Smith, 1982), the researchers reported that giving opinions, providing information, and making proposals were some of the most frequently used speech act categories in the spouses' decision-making conversations. While more data on this subject is needed, the preliminary findings of these studies suggest that joint decision-making may be characterized by spouses expressing their own ideas more often than asking what their significant other thinks. In conversations between spouses without a communication impairment, this arrangement may work fine; however, when individuals have trouble expressing ideas due to aphasic deficits, their significant others may need to ask more initiating questions to ensure that the ideas of the persons with aphasia are included in the conversation.

A second similarity identified in the study was that both groups of spouses produced substantially more elaborations than extensions in their continuing moves, indicating that both groups restated information already provided rather than adding qualifying or contrasting details to the propositions at hand. The frequent use of continuing elaborations made by the spouses without aphasia served two general

purposes: first, the elaborations assisted in facilitating comprehension of their message, and second, they helped to persuade their significant other to agree with them. While this study did not set out to examine relationships between subsequent moves, the primary investigator observed that participants often changed their minds and agreed to the terms of a proposition following a continuing move made by their spouse. In light of the findings from Research Question 3 of this study showing that individuals with aphasia produced proportionately fewer continuing moves compared to their non-aphasic spouses, there was a potential for an imbalance of power in decision-making conversations between couples in which one of the spouses has aphasia. That is, since continuing moves function as a strategy to persuade others, spouses with aphasia have less 'force' in the discussion as a consequence of their less frequent use of continuing moves.

A third similarity between the groups was that both were highly and equally supportive in their reactions to their spouse's proposals, comments, and inquiries. These findings are consistent with results from other studies. For example, Krueger and Smith (1982) found that couples were generally cooperative and supportive when participating in joint decision-making tasks. Armstrong et al. (2013) reported on a married couple affected by aphasia, who evidenced the same proportion of supporting (76%) and confronting (24%) moves in argumentative discourse. Compared to this couple, the spouses in the present study demonstrated higher percentages of supporting moves (92% and 91% for spouses with and without aphasia, respectively) and lower percentages of confronting moves (8% and 9% for spouses with and without aphasia, respectively), on average. This may be because of a difference in the nature of discourse between joint

decision-making and argumentation. That is, it would seem reasonable to assume that the latter would involve more acts of countering, refuting, and challenging, among other types of confronting moves, compared to joint decision-making discourse. Another potential factor related to the relatively high percentage of supporting moves demonstrated by the spouses in this study could be the quality of the marital relationships. By and large, the spouses in the sample expressed positive feelings for their significant others on the ARI. Follow-up testing was conducted to examine potential relationships between spouses' ARI scores and the outcomes of the Research Questions 1-4. The lack of a significant correlation between the ARI scores and the Research Question outcomes could be explained by a small difference between participants' ARI scores. A larger sample with more variation in ARI scores might reveal a relationship between spouses' communication behaviors and the quality of their marital relationship. Of note, one couple (Dyad 10) was unable to complete either experimental task due to problems with agreeing on which items to put on their combined lists. Their interactions included very little cooperation, support, or compromise when negotiating a decision. Moreover, the couples' combined ARI scores were the third lowest in the sample, indicating potential evidence for an association between decision-making communication and marital quality. Future research is needed to explore this relationship further as well as identify other potential factors that may influence communication behaviors in marital decision-making in couples affected by aphasia.

In addition to the above similarities, the present study identified several differences in the usage of speech functions between the groups of spouses. The two most apparent differences pertained to the total number of moves and the types of

reacting moves demonstrated by the spouses. Individuals with aphasia made significantly fewer total moves, on average, compared to their spouses. Many of the additional moves produced by the spouses without aphasia were realized in continuing moves, as discussed above, but also in opening and rejoinder moves. The increase in total number of moves resulted in their occupying more airspace in the conversations and ultimately having a more dominate role in the decision-making process. The other major difference between the spouses' speech function usage related to the types of reacting moves they made in response to their spouse's statements and inquiries. Individuals with aphasia produced substantially more registering responses compared to the spouses without aphasia. Registering responses are minimal reactions in negotiatory terms. They do not introduce new material for negotiation or demonstrate strong opinions about a proposition given by the other speaker (Eggins & Slade, 2004). Instead, registering responses are used to indicate that the listener is attending to the conversation or provide supportive encouragement for the other speaker to take another turn in the discussion. By contrast, the spouse without aphasia made far more developing elaborations and extensions, resulting in greater control over the directionality of the decision-making process.

The present study revealed several problems individuals with aphasia face when participating in decision-making conversations with their significant other. The consequences of these problems could have significant effects on marital satisfaction and well-being. For example, Mackey and O'Brien (1995) identified a positive relationship between joint decision-making capability and marital quality. That is, the study found that couples who reported higher levels of joint decision-making also reported higher levels of marital satisfaction. Other studies have found decreases in anxiety and



depression levels in cancer patients when the patients collaborated with a spouse in deciding between treatment options (Berg et al., 2008; Lepore & Helgeson, 1998). In carrying out the mission of LPAA, researchers must carefully examine the impact of aphasia on everyday activities so barriers limiting participation can be removed.

Although marital decision-making is one of the most common forms of communication between couples (Kelley, 2011), much of the actual deciding is done indirectly through “silent arrangements” (Sillars & Kalbflesch, 1989), such as the wife taking over decisions regarding retirement saving plans and the husband deciding where to vacation. When considering the hundreds of decisions couples make each day, silent arrangements are labor-saving devices and circumvent the problem that would arise if every detail of a decision was negotiated (Sillars & Kalbflesch, 1989). Nevertheless, the need for couples to make explicit decisions occurs frequently in marital relationships (Jaccard et al., 1989).

This study aimed to understand and describe the communicative processes associated with thoughtful decision-making between couples affected by aphasia. It is acknowledged that the experimental tasks used to elicit such processes are contrived and do not reflect real-life decisions for the participants. When deliberating to use the selected tasks, a number of factors were considered. First, it was important that the tasks represent a novel decision-making activity for the participants so that their prior experiences would not lead them to an immediate or agreed upon decision. This ensured that the decision-making was explicit rather than implicit. If a more “functional” decision-making task were used, some couples might already have a routine or method for making the decisions. In such instances, the couples would not truly be making an explicit decision. Second, the tasks elicited an array of complex cognitive operations,

including divergent and convergent thinking, evaluative judgements, and pragmatics, but were not so complex that the participants had trouble following the task instructions. This allowed the researcher to examine the processes of decision-making when the participants were challenged to provide more than an ‘opinion.’ In a number of studies in the decision-making literature, researchers instructed the couples to make a decision about where to take a vacation or how to spend money won in a sweepstakes. While these, and other similar tasks, provide practical insights into couples’ collaborations, they do not provide information about how couples collaborate when higher-level cognitive faculties are required. By contrast, the tasks associated with this study were selected for their potential to engage participants in complex decision-making conversations. Third, the tasks were designed to be stress free and enjoyable (even though marital decision-making is sometimes associated with anything but these feelings). Participants reported that the tasks were “interesting” and “fun.” Other participants said that the tasks resembled how they make decisions at home. For instance, one participant (SO-14) described how the decision-making processes demonstrated on the tasks were similar to her and her husbands’ day-to-day decision-making: “...often we kind of sometimes agree to disagree....I mean, we, we agreed to it, and it’s like, you know, you can’t have everything your way so you kind of compromise and you have to stand on the big issues and let the little issues go.”

#### *Clinical Relevance*

This study has highlighted the importance of joint decision-making in married couples and identified potential problem areas associated with decision-making communication in couples affected by aphasia. Speech-language pathologists are

uniquely situated to discuss this issue with clients and provide communicative counseling (Holland & Goldberg, 2007) and training on use of communication strategies to improve decision-making in married couples living with a language disorder. The discussion that follows focuses on how the procedures and findings of this study can be applied to clinical practice.

While the speech function network is a useful tool for describing detailed variations of speech function usage, clinicians do not necessarily need the entire armamentarium of the network for explaining conversations to couples (Armstrong & Mortensen, 2006). The simplistic, abridged version depicted in Figures 2 and 3 is rich enough to develop a variety of therapeutic goals for many clients, yet simple enough to serve as an instructional tool for client education. For example, the figure is useful for explaining to clients with aphasia distinctions between turns and moves and the different types of moves, such as opening versus sustaining, and continuing versus reacting. Such insights could be used to increase the frequency of opening and continuing moves in a person with aphasia or reduce the frequency of continuing moves by their spouse. The network could also be extended out to help clients produce a wider array of speech functions. For instance, a clinician could set therapeutic goals to increase the frequency and variety of replies by a client who typically only produces registering responses. Goals such as these would improve the client's ability to negotiate a given proposition and enable him or her to be more assertive in the decision-making conversations.

An underlying premise in this discussion is that the problems associated with joint decision-making can only be treated in the context of a couple-based treatment approach. Clients with aphasia cannot be expected to effectively build up their ideas in continuing

moves if they are incessantly interrupted by their communication partners or a new topic is introduced before they have had the chance to communicate their full message. Couple-based communication partner training is therefore essential for addressing the issues outlined in this study. There are a number of different approaches a clinician might use to carry out a couple-based treatment session. For example, a speech-language pathologist could provide online feedback in terms of what is or is not working for the couple in their joint decision-making conversations. Alternatively, the clinician and couple could review audio and video segments of the couple's collaborative decision-making discussions. This provides an opportunity for the spouses to see for themselves which communication behaviors hinder and facilitate mutual participation and could lead to insights that enhances their involvement in the goal setting process (Beeke et al., 2015).

One of the primary decision-making communication problems identified in this study was the imbalance in the frequency of continuing and sustaining moves between the groups of spouses. That is, spouses with aphasia made proportionately fewer continuing moves compared to those without aphasia, resulting in less information expressed per turn. It is well known that people with aphasia have trouble “‘building’ a turn” in conversations (Beeke et al., 2015, p. 358). The findings from this study provide a new perspective to the problem by showing that difficulties in ‘building a turn’ (i.e., producing multiple moves within a turn) may affect the balance of power in marital decision-making. Clinicians working with couples to improve joint decision-making communication may find it useful to begin by examining and treating this communication

problem while simultaneously exploring for other factors interfering with the couple's collaborative decision-making.

While many types of tasks could be used to elicit joint decision-making communication, this investigation found some particular advantages in the experimental tasks used in the study. First, the tasks were completed within a relatively short period of time (see Appendix F), making them suitable for a thirty or sixty minute treatment session. Second, the tasks elicited a variety of different speech functions by both spouses. Thus, the information gleaned from the tasks would be useful for setting appropriate and individually tailored therapy goals. Third, participants indicated that they enjoyed the tasks. Since having a discussion about problems with marital decision-making can be uncomfortable for both clients and clinicians, the tasks could function as an icebreaker to warm up the conversation.

#### *Limitations of the Study and Future Research*

While this study yielded several new and relevant findings, it has some limitations. Due to sampling procedures, all participants were currently or formerly involved in a university or community aphasia program. These programs incorporated social approaches to aphasia intervention, including SCA and other communication partner training techniques, and primarily attracted participants with chronic aphasia who had previously received the 'full' amount of available inpatient and outpatient therapy services offered to them. Moreover, the sample was well educated and most of the spouses reported positive feelings for their significant other's attitudes. While the study represented a variety of aphasia classifications and severity levels, caution should be taken in generalizing the findings to other groups of spouses. Importantly, given the

participant factors just described, it is probable that many couples affected by aphasia experience greater difficulty making decisions together than the participants in this study. Future investigations should examine participants who are more acutely aphasic, since marital decision-making may be particularly troubling during this time period, and who vary more in their feelings toward their spouse and marriage.

Another limitation was lack of established validity for the experimental tasks used to elicit spousal decision-making. While a number of tasks have been used in the literature, the primary investigator does not know of any research that has examined the external validity of laboratory-evoked processes in joint decision-making. The experimental tasks of this study did elicit decision-making communication; however, future research should examine the similarities and differences between decision-making conversations elicited with tasks in clinical research and those that occur naturally at home or in the community.

A third limitation pertains to the clinical applicability of the procedures used to analyze the couples' communicative interactions. The transcribing and speech-function coding procedures employed in this study are far too labor-intensive for the busy speech-language pathologist delivering clinical services to perform; thus, the study procedures may not be practical for many clinicians to use, despite their clinical utility. Fortunately, evidence is emerging in the viability of "transcription-less" discourse analysis (DA). Reasonable reliability and validity have been demonstrated across a variety of discourse features, including conversation and topic initiation, topic use, and turn-taking, among others (Armstrong, Brady, Mackenzie, & Norrie, 2007). Future studies should examine the potential of a transcription-less DA approach in speech function analyses.

Finally, this study sought to capture *how* joint decisions are made. In order for therapy activities to be personally and meaningfully relevant to clients, information is needed about *what* issues provoke decision-making conversations in couples living with aphasia. Qualitative research on this subject would provide additional insight needed to develop optimal interventions and enhance discussions between clinicians and clients about clients' difficulties with joint decision-making.

### *Conclusion*

This study provided foundational information on how married couples affected by aphasia jointly make decisions. Information gleaned from the study will help speech-language pathologist assess deficits associated with aphasia and could lead to interventions that improve participation in decision-making, quality of life, and marital satisfaction.

**Appendix A**  
**Demographical Information Form**

Participant Identification Number: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

Number of years you and your significant other have been together \_\_\_\_\_ (include years of dating prior to marriage)

Years of education: \_\_\_\_\_

Highest educational degree obtained: \_\_\_\_\_

*(If applicable)* Date of stroke causing aphasia: \_\_\_\_\_

*(If applicable)* How has the stroke affected your communication: \_\_\_\_\_

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## Appendix B

### The Autonomy and Relatedness Inventory (ARI)

Please indicate how well each of the following statements describes your significant other.  
The choices are:

- 1 = Not at all like him/her
- 2 = Very little like him/her
- 3 = Somewhat like him/her
- 4 = Much like him/her
- 5 = Very much like him/her

1. Talks over his/her problems with me. \_\_\_\_\_
2. Is always trying to change me. \_\_\_\_\_
3. Respects my opinions. \_\_\_\_\_
4. Acts as though I am in the way. \_\_\_\_\_
5. Is there when I need him/her. \_\_\_\_\_
6. Won't take no for an answer when he/she wants something. \_\_\_\_\_
7. Tries to understand how I see things. \_\_\_\_\_
8. Gives me as much freedom as I want. \_\_\_\_\_
9. Is always thinking of things that would please me. \_\_\_\_\_
10. Argues back no matter what I say. \_\_\_\_\_
11. Encourages me to follow my own interests. \_\_\_\_\_
12. Makes fun of me. \_\_\_\_\_
13. Is very willing to help when I need it. \_\_\_\_\_
14. Wants to have the last word on how we spend our time. \_\_\_\_\_
15. Thinks I am worth listening to. \_\_\_\_\_
16. Lets me make up my own mind. \_\_\_\_\_
17. Has a good time with me. \_\_\_\_\_
18. Wants to control everything I do. \_\_\_\_\_
19. Is Happy to go along with my decisions. \_\_\_\_\_
20. Says I'm a big problem. \_\_\_\_\_
21. Does what he/she can to make things easier for me. \_\_\_\_\_
22. Expects me to do everything his/her way. \_\_\_\_\_
23. Makes me feel I can tell him/her anything. \_\_\_\_\_
24. Thinks it's okay if I disagree with him/her. \_\_\_\_\_
25. Asks me to share things he/she enjoys. \_\_\_\_\_
26. Finds fault with me. \_\_\_\_\_
27. Considers my point of view. \_\_\_\_\_
28. Doesn't think about me very much. \_\_\_\_\_
29. Tries to comfort me when things go wrong. \_\_\_\_\_
30. Acts as if he/she doesn't know me when he/she is angry. \_\_\_\_\_

Adapted from Hall and Kiernan (1992)

## Appendix C

### Description and Psychometric Property of Testing Materials

#### *Measures Completed by All Participants*

*Raven's Coloured Progressive Matrices (RCPM)*. The RCPM is a standardized, nonverbal assessment for measuring reasoning ability (Raven, 1995). The format consists of three sets (A, Ab, B); each set consists of twelve multiple-choice questions, listed in order of difficulty. In Set A, the participant is shown a geometric design with a piece missing from it and is asked to choose from an array of six possibilities the missing element that completes the pattern. Set A is believed to measure visuo-perceptual abilities (Denes, Semenza, Stoppa, & Gradenigo, 1978). In Sets Ab and B, the emphasis shifts from pattern completion to analogic reasoning. For each item in Sets Ab and B, the participant is shown three patterns and must identify the missing fourth piece from six alternatives. Participants are provided one point for every correct response. An additional bonus point is awarded if the participant completes all 36 items within five minutes. Scores on the RCPM range from 0 to 36 with higher scores indicating better performance on the measure.

Because participants are allowed to point for providing a response, the RCPM requires no linguistic output. Furthermore, except for the initial instructions of the examination, no linguistic information is provided to the participants during the administration of the test. The RCPM is therefore an appropriate tool for evaluating reasoning abilities in people with and without aphasia (Kertesz & McCabe, 1975), although some researchers have suggested that solving some of the test items is

dependent on language processing abilities (e.g., Baldo, Bunge, Wilson, & Dronkers, 2010).

Kertesz and McCabe (1975) examined the scores of the RCPM for 111 older adults with aphasia and correlated the participant performance with aphasia severity and classification type, as established by the *Western Aphasia Battery*. Higher RCPM scores were found for participants with anomic ( $M = 21.8$ ,  $SD = 8.0$ ), conduction ( $M = 18.0$ ,  $SD = 7.1$ ), and Broca's ( $M = 16.6$ ,  $SD = 8.5$ ) aphasias compared to participants with aphasia classifications associated with greater receptive semantic-lexical disturbances, for example, transcortical sensory ( $M = 7.8$ ,  $SD = 4.5$ ), Wernicke's ( $M = 12.1$ ,  $SD = 7.7$ ) and global ( $M = 3.6$ ,  $SD = 6.2$ ) aphasias.

A control group of 19 healthy, aged-matched participants were examined in the same study and compared to the aphasia group (Kertesz & McCabe, 1975). Forty-two percent of participants with aphasia performed at or above one standard deviation below the mean score of the healthy control on the RCPM ( $M = 24.8$ ,  $SD = 6.6$ ), demonstrating that many individuals with aphasia score within normal performance levels on this measure.

The mean and variance scores reported in the above paragraph for the healthy control are comparable to the findings by Levinson (1959) (Mean = 24.8,  $SD = 5.3$ ). In a large investigation on 305 healthy Italians, Basso et al. (1987) sought to determine whether age, gender differences, and educational level influenced performance on the RCPM. Findings from this study showed that educational attainment positively influenced mean RCPM scores and that mean scores deteriorated as age increased in

older adulthood. There were no significant differences in the mean RCPM scores obtained by males and females in this study (Basso et al., 1987).

*Autonomy and Relatedness Inventory (ARI)*. The ARI is a 30-item self-reported measure designed to assess both negative and positive dimensions of primary intimate relationships such as marital relationships, relationships between parents and children, and friendships (Hall & Kiernan, 1992). Participants describe their perception of their significant other's behavior toward them for each item using a 5-point Likert scale (1 = not at all like him/her, 2 = very little like him/her, 3 = somewhat like him/her, 4 = much like him/her, and 5 = very much like him/her) (see Appendix B).

The ARI consists of 8 subscales: Acceptance, Relatedness, Support, Listening, Autonomy, Control, Hostile control, and Detachment/Rejection. Each item is scored on only one subscale. Both subscale scores and a total score can be derived. Subscale scores are derived by summation of their respective items and then subtracting the number of items in the subscale. Subscale scores for Listening and Autonomy ranges from 0 to 12. Scores for all other subscales ranges from 0 to 16. Items used to derive the subscale scores for Control, Hostile control, and Detachment/Rejection are reversed before calculating the total score. Summing the scores for all eight subscales yields a total score ranging from 0 to 120. Higher scores denote more positive ratings of the relationship.

The ARI is a refinement of earlier instruments developed by Shaefer and Egerton including the Child Report of Parent Behavior Inventory (Schaefer, 1965), the Relationship Inventory for Families, and the Marital Autonomy and Relatedness Inventory (Hall & Kiernan, 1992). Hall and Kiernan (1992) investigated the internal

consistency reliabilities of the ARI and its subscales in 213 women. The Cronbach's alpha calculated for the ARI total score was .90. The alphas for the subscales ranged from .53 to .76 (Control = .76; Support = .75; Listening = .74; Hostile control = .72; Relatedness = .71; Acceptance = .71; Autonomy = .62; and Detachment/Rejection = .53). In an investigation with one-hundred and forty-one married couples, Rankin-Esquer, Burnett, Baucom, and Epstein (1997) found high alpha coefficients for the ARI's Relatedness and Autonomy subscales. The alpha coefficients for Relatedness were .72 for females and .78 for males; the Autonomy alphas were .70 for females and .80 for males. Relatedness and Autonomy scales were positively correlated for both males and females (females  $r = .44$ ; males  $r = .55$ , both at  $p < .001$ ), indicating that partners who provide more of a sense of closeness also provide more of a sense of autonomy. In the same study, Rankin-Esquer and colleagues (1997) examined gender differences in the ARI Relatedness and Autonomy subscales. A matched t-test between husbands and wives revealed no significant differences in mean Relatedness scores ( $t = -1.04$ ,  $p > .05$ ), indicating that husbands and wives perceive approximately the same degree of relatedness. However, a significant difference on the Autonomy scale was identified between husbands and wives ( $t = -3.37$ ,  $p < .001$ ), with wives perceiving husbands as encouraging more autonomy than husbands perceive their wives as encouraging.

The relationship between sociodemographic characteristics and the ARI total score was evaluated by Hall and Kiernan (1992). No significant correlations were identified between the total scores of the ARI and participants' ages ( $r = .11$ ,  $p = .12$ ), level of education ( $r = .02$ ,  $p = .72$ ), income ( $r = .05$ ,  $p = .43$ ), or number of children ( $r = .01$ ,  $p = .83$ ); and no significant differences in total ARI score were identified by

participants' race ( $t(210) = -0.47, p = .64$ ), marital status ( $t(211) = 0.19, p = .85$ ), or employment status ( $t(211) = 1.32, p = .19$ ).

Convergent validity was evaluated by demonstrating the association between the ARI subscales and the scales of a modified version of the Dyadic Adjustment Scale (DAS) for 40 married mothers (Hall & Kiernan, 1992). Significant correlations between the ARI subtests and the modified DAS were identified on 21 of the 24 possible correlations. The three nonsignificant correlations were identified between the negative subscales of the ARI and the DAS Cohesion subscale (Hall & Kiernan, 1992).

A sixth grade readability level was determined for the questionnaire items of the ARI using the SMOG Grading formula (Hall & Kiernan, 1992; McLaughlin, 1969). For this study, the primary investigator offered to assist all participants with the completion of the ARI. Most of the participants with aphasia accepted the offer. Support was provided in several ways. First, questions were reworded to enhance comprehension. This was accomplished by including the name of the participant's significant other in the questionnaire item and by substituting the word "me" for "you." For example, item 1 of the ARI would be modified from "*Talks over his/her problems with me*" to "*Amy talks over her problems with you.*" Second, the response items were printed out and kept in front of the participant at all times when completing the ARI to provide additional support. Third, when the primary investigator judged that the participant did not fully understand the questionnaire item, he would ask, "is this 'like Amy?,' 'not like Amy?,' or 'somewhat like Amy?'" and use hand gestures as needed (for example, holding the hand parallel to the ground, with the palm facing down, and rocking it to indicate "somewhat" or providing a thumbs up or thumbs down to indicate "like" or "not like," respectively).

After the participant provided an answer, for example, “not like Amy,” the investigator would then ask “is this ‘very little like Amy?’ or ‘not at all like Amy?’” Once the participant provided an answer to this question, the investigator sought to confirm that he correctly understood the participant’s intended response by repeating the participants answer and stating the corresponding number of the Likert scale. For example, “Amy is not at all like this; so you want to give it a 1?” Finally, all questionnaire items were read or re-worded, as just described, as many times as needed until the participant expressed understanding of the item and provided an answer. In order to protect the confidentiality of the information provided by the participants when the primary investigator was assisting them with the completion of the questionnaire, spouses were asked to wait in a separate room until the questionnaire was completed.

#### *Measures Completed Only by the Participants with Aphasia*

*Western Aphasia Battery-Revised (WAB-R).* The WAB-R is standardized aphasia test battery that is widely used for treatment and research purposes (Kertesz, 1982). It provides three summary scores of a test-taker’s performance: (1) an Aphasia Quotient (AQ), which is derived from oral language subtests, (2) a Language Quotient (LQ), which is derived from oral language, written language, and reading subtests, and (3) a Cortical Quotient (CQ) which is derived from all subtests of the WAB, including Praxis and Construction subtests and the Raven’s *Progressive Coloured Matrices* (Raven, 1995).

For the present study, the WAB-R was administered to obtain an AQ for the participants with aphasia. The WAB-R AQ is a measure of the severity of spoken language impairments. Scores range from 0 to 100. According to the test manual, an AQ of 76 to 93.8 indicates mild aphasia, an AQ of 51 to 75 indicates moderate aphasia, an

AQ of 26 to 50 indicates severe aphasia, and a score of 25 or below indicates very severe aphasia (Kertesz, 2007, pp. 83 & 91). Some researchers have suggested using a wider range of AQ scores for rating mild aphasia. For example, Fromm et al. (2017) described mild aphasic deficits in individuals, who obtained an AQ score above the 93.8 cutoff score for a diagnosis of aphasia on the basis of the WAB-R.

The WAB-R AQ consists of four areas of assessment: *spontaneous speech*, *auditory comprehension*, *repetition*, and *naming*. The spontaneous speech subtests rate the information content and fluency of a test-taker's speech in the context of conversational questions and a picture description. The auditory comprehension subtest evaluates a test-taker's comprehension of yes-no questions, identification of objects and pictures, and execution of simple and sequential commands. The repetition subtest examines a test-taker's ability to repeat words, phrases, and sentences with increasing length and complexity. The naming subtest consists of object naming, word fluency, sentence completion, and responsive speech. All language subtests scores range from 0 to 10, except spontaneous speech, which ranges from 0 to 20. Subtest scores are summed and then multiplied by two to derive the AQ.

In addition to providing a measure of language impairments for individuals with aphasia, the WAB-R can be used to classify aphasia subtypes on the basis of a test-taker's scores on the four AQ language subtests. Types of aphasia classified on the WAB-R are *global*, *Broca's*, *isolation*, *transcortical motor*, *Wernicke's*, *transcortical sensory*, *conduction*, and *anomic* aphasia.

Shewan and Kertesz (1980) reported on the reliability and validity characteristics of the WAB in 132 individuals with aphasia and a 59 person control group consisting of



both neurologically intact and brain-injured controls. Internal consistency of the WAB was evaluated using the Cronbach's alpha statistic. The WAB evidenced a coefficient of .91, indicating high internal consistency and reliability. Furthermore, these same authors reported high correlation coefficients for the WAB's test-retest reliability as well as intra- and inter-rater reliability on the AQ summary index and subtests, excepting the spontaneous speech Fluency subtest (Shewan & Kertesz, 1980).

Shewan and Kertesz (1980) also found that the WAB met criteria for good face, content, and construct validity. Fifteen participants were administered the WAB and the *Neurosensory Center Comprehensive Examination for Aphasia* (NCCEA; Spreen & Benton, 1977) within a two week interval. Participant scores on the corresponding subtests from the WAB AQ and the NCCEA were compared by calculating Pearson product-moment correlations. At a significance level of .01, resulting correlation coefficients ranged from .08 to .91 for the corresponding AQ and NCCEA subtests, indicating that the WAB has high construct validity when matched for content with the NCCEA.

*Boston Naming Test-Second Edition (BNT-2)*. The BNT-2 is a widely used picture naming test in which the test-taker is shown a maximum of 60 line drawings (one-by-one) and asked to name the depicted object (Kaplan, Goodglass, & Weintraub, 2001). Test-takers are awarded one point for each successfully named item without any cues provided by the administrator. Test-takers are allowed up to 20 seconds to provide a response after presentation of the picture stimulus. The items of the BNT-2 are ordered from easiest to most difficult, and administration of the BNT-2 is discontinued after eight consecutive failures (Kaplan et al., 2001).

Reliability and validity characteristics of the BNT have been examined in a number of independent studies involving healthy individuals and clinical populations with and without aphasia (Lezak, Howieson, Bigler, & Tranel, 2012; Spreen & Risser, 1998). Flanagan and Jackson (1997) examined the test-retest reliability of the BNT in thirty-one healthy adults, ranging from 50 to 77 years of age with 12 to 16 years of education. Participants were tested on two occasions separated by a seven- to seventeen-day interval. The Pearson product-moment correlation coefficient was .91, indicating that the BNT is stable over time. Axelrod, Ricker, and Cherry (1994) established the concurrent validity ( $r = .86$ ) between the BNT and the Visual Naming Test (VNT) of the Multilingual Aphasia Exam (Benton, Hamsher, & Sivan, 1989) in a clinically diverse population of 100 male veterans. Normative data provided in the test manual showed mean BNT-2 scores were 56.8 ( $SD = 3.0$ ) for adults 40 to 49 years of age, 55.2 ( $SD = 4.0$ ) for adults 50 to 59 years of age, 53.3 ( $SD = 4.6$ ) for adults 60 to 69 years of age, and 48.9 ( $SD = 6.3$ ) for adults 70 to 79 years of age (Kaplan et al., 2001). Moreover, several studies have been conducted to extend the normative sample of the BNT to represent diverse educational, racial, socioeconomic, and geographic backgrounds (Henderson, Frank, Pigatt, Abramson, & Houston, 1998; Kohnert, Hernandez, & Bates, 1998; Neils et al., 1995; Tombaugh & Hubiey, 1997).

*Picture Description.* Connected speech samples were elicited by asking participants to describe the *Cookie Theft* picture from the *Boston Diagnostic Aphasia Examination* (Goodglass & Kaplan, 1983). Participants' responses were audio-recorded and transcribed verbatim by the primary investigator or a research assistant, who was trained to transcribe discourse productions. Based upon these transcriptions, participants'

performances on the picture description task were quantified by (1) determining the time (in seconds) it took the participant to describe the picture, (2) calculating the Mean Length of Utterance (MLU) for the description using procedures of Florance (1981), (3) counting the number of Correct Information Units (CIUs) in the description using guidelines provided by Nicholas and Brookshire (1993), (4) determining the mean number of CIUs produced per minute in the participants' discourse productions, and (5) calculating the percentage of total words that are CIUs in the participants' picture descriptions.

The MLU is an index of language performance determined by the average length of spoken utterances; it is tabulated by calculating the number of intelligible words and dividing by the total number of utterances (i.e., sentences) (Florance, 1981). CIUs measure the amount of informational content conveyed in a narrative. Nicholas and Brookshire (1993) defined CIUs as words that are "accurate, relevant, and informative relative to the eliciting stimulus" (p. 340). Cutoff scores for normal performance were established by determining as the lower limit of non-brain injured performance two standard deviations below the mean performances by a group of healthy adults (Nicholas & Brookshire, 1993). The scores were calculated across three assessment sessions and therefore provide a narrow range, rather than a specific cutoff point. The cutoff scores for CIUs per minute ranged from 107 to 111, and the cutoff scores for percentage of words that are CIUs ranged from 76 to 78 percent (Nicholas & Brookshire, 1993).

*Reading Comprehension Battery for Aphasia-Second Edition (RCBA-2).* The RCBA-2 is a test of reading comprehension designed to evaluate reading abilities in adults with aphasia (LaPointe & Horner, 1998). The full battery contains ten subtests

with ten items in each subtest. For the purpose of this study, only subtests 1-3 and 8-9 were administered in order to reduce the amount of testing done with the participants. Subtests 1, 2, and 3 assess single-word reading from preschool to Grade 3 vocabulary. For these Subtests, test-takers point to a printed word from an array of three choices that names the object depicted in a line drawing. Word choices include visually similar words (e.g., *fan, fin, pan*), words that sound alike (e.g., *sky, pie, bye*), and words that are semantically similar (e.g., *lock, key, door*) for subtests 1, 2, and 3, respectively. Subtests 8 and 9 present five 52-word paragraphs. The reading level of the paragraphs ranges from Grade 2.9 to Grade 6.7. For these Subtests, a test-taker reads each paragraph and answers four sentence-completion items by selecting a word or phrase from three choices for each item. The first two test items for each paragraph assess comprehension of information and the last two test items assess comprehension of implied information. Scores for the ten items testing stated information are assigned to Subtest 8, and scores for the ten items testing implied information are assigned to Subtest 9 (LaPointe & Horner, 1998).

The reliability and validity characteristics of the RCBA have been investigated in independent studies using both neurologically intact and participants with aphasia (Flanagan & Jackson, 1997; Van Demark, Lemmer, & Drake, 1982). High test-retest stability has been established in two studies. Flanagan and Jackson (1997) administered the RCBA two times to a group of thirty-one healthy adults within a seven- to seventeen-day interval. The Pearson product-moment correlation coefficient was .80. Van Demark et al. (1982) assessed the test-retest reliability of the RCBA for fourteen individuals with aphasia and reported a resulting reliability coefficient of .94 when the test was re-

administered within 24 to 48 hours of the initial administration. In this same study, the authors found high internal consistency (Kuder-Richardson coefficient = .96) in twenty-six participants with aphasia, indicating a high degree of homogeneity within the test items and across participants (Van Demark et al., 1982).

Van Demark et al. (1982) established the concurrent validity of the RCBA by computing correlations between RCBA scores and scores on two other measures of reading comprehension: the *Gates Silent Reading Test* (Gates, 1958) and the reading comprehensions Subtests (V and VII) of the *Porch Index Communicative Abilities* (PICA; Porch, 1967). The correlations coefficients were .80 for the RCBA-Gates scores and .87 for the RCBA-PICA subtests scores, indicating acceptable criterion-reference validity for the RCBA (Van Demark et al., 1982).

*Cognitive Linguistic Quick Test (CLQT)*. The CLQT is a widely used criterion-referenced assessment for obtaining information on the relative status of five domains of cognition (attention, memory, executive functions, language, and visual spatial skills) in adults with neurological dysfunctions (Helm-Estabrooks, 2001). The CLQT consists of ten tasks. On the basis of scores obtained from the tasks, an overall Composite Severity Rating is provided as well as a severity rating for each cognitive domain for two age categories (ages 18 to 69 and 70 to 89). Test scores for the cognitive domains and the Composite Severity Rating are reported as either within normal limits or indicative of mild, moderate, or severe deficits. For the cognitive domains, a computed score of 1 indicates severe impairments, 2 indicates moderate impairments, 3 indicates mild impairments, and 4 indicates within normal limits. For the total Composite Severity Rating, computed scores ranging from 1.0 to 1.4 indicate severe impairments, 1.5 to 2.4

indicate moderate impairments, 2.5 to 3.4 indicate mild impairments, and 3.5 to 4.0 indicate within normal limits (Helm-Estabrooks, 2001).

Nancy Helm-Estabrooks (2001) assessed the reliability and validity of the CLQT. Test-retest stability was established using forty-six neurologically intact test-takers between the ages of nineteen and eighty-nine ( $M = 50.13$ ,  $SD = 20.91$ ) who took the test two times separated by an interval of 80 to 140 days ( $M = 100.43$ ,  $SD = 11.92$ ). The test-retest reliability coefficients ranged from .61 to .90 for the cognitive domains (Attention = .69; Memory = .61; Executive Functions = .90; Language = .81; and Visuospatial Skills = .71). (Helm-Estabrooks (2001)) also found strong content and internal structure validity using both neurologically intact and impaired examinees.

## Appendix D

### The Airplane Crash Task

*Mid-January is the coldest time of year in Northern Canada. The first problem the survivors face is the preservation of body heat and the protection against its loss. This problem can be solved by building a fire, minimizing movement and exertion, using as much insulation as possible, and constructing a shelter.*

*The survivors have just crash-landed. Many individuals tend to overlook the enormous shock reaction this has on the human body and the deaths of the pilot and co-pilot increases the shock. Decision-making under such circumstances is extremely difficult. Such a situation requires a strong emphasis on the use of reasoning for making decisions and for reducing fear and panic. Shock would be shown in the survivors by feelings of helplessness, loneliness, hopelessness, and fear. These feelings have brought about more fatalities than perhaps any other cause in survival situations. Certainly the state of shock means the movement of the survivors should be at a minimum, and that an attempt to calm them should be made.*

*Before taking off, a pilot has to file a flight plan which contains vital information such as the course, speed, estimated time of arrival, type of aircraft, and number of passengers. Search-and-rescue operations begin shortly after the failure of a plane to appear at its destination at the estimated time of arrival.*

*The 20 miles to the nearest town is a long walk under even ideal conditions, particularly if one is not used to walking such distances. In this situation, the walk is even more difficult due to shock, snow, dress, and water barriers. It would mean almost certain death from freezing and exhaustion. At temperatures of minus 25 to minus 40, the loss of body heat through exertion is a very serious matter.*

*Once the survivors have found ways to keep warm, their next task is to attract the attention of search planes. On your way off the plane, you were able to salvage 6 items from this list (researcher hands participants a list of the items--see below). You must assess the worth of these items and rank the top six items you would select for their value in your efforts to stay work and signal the group's whereabouts.*

#### Survival Items (Airplane Crash)

- Ball of Steel Wool
- Can of Crisco Shortening
- Cigarette Lighter
- Compass
- Extra Shirt and Pants for Each Survivor
- Family Size Chocolate Bar (one per person)
- Loaded .45-Caliber Pistol
- Newspapers (one per person)
- Quart of 100 Proof Whisky
- Sectional Air Map Made of Plastic
- Small Ax
- 20 x 20 Foot piece of Canvas

Adapted from Kelly et al. (2011)

## Appendix E

### The Stranded in the Desert Task

*You are a member of an organization overland tourist group that has been touring off the regular routes in the Simpson Desert between Muncoorie and Andado. As a result of a sudden front tire blow out your Land Rover has overturned, caught fire, and been burnt to a shell.*

*Before the vehicle was completely consumed by the fire, you were able to salvage 6 items from this list (researcher hands participants the list of items--see below). Now you must decide how to survive the desert climate and terrain, get help, and hopefully make it out of the desert alive. With the clothes on your back and the 6 items you pulled from the wreckage, how will you survive?*

#### Survival Items (Stranded in the Desert)

- Small Bottle of Salt Tablets
- Box of Biscuits
- Blankets
- 2-Liter Can of Water
- Four Camp Cots
- Three Empty Backpacks
- One Bottle of Rum
- Shaving Mirror
- One Square Meter of Plastic
- One Carton of Cigarettes
- One Case of Canned Fruit
- Rifle and Six Rounds of Ammunition
- Small Transistor Radio
- 8-Liter Can of Oil
- Large Sheet of Canvas

Adapted from Watson et al. (1981)



## Appendix F

### Length of Time Couples Took Completing the Experimental Tasks

Dyad #	Experimental Tasks		Times Combined (minutes:seconds)
	Stranded in the Desert (minutes:seconds)	Airplane Crash (minutes:seconds)	
1	9:58	10:23	20:21
2	6:31	4:01	10:32
3	10:43	7:55	18:38
4	5:50	6:55	12:45
5	12:10	5:26	17:36
6	6:28	3:56	10:24
7	9:15	8:40	17:55
8	8:23	8:31	16:54
9	7:01	4:29	11:30
10	16:25	8:14	24:39
11	5:06	4:59	11:05
12	8:16	7:47	16:03
13	9:12	3:58	13:10
14	5:56	6:34	12:30

## Appendix G

### Pearson Product-Moment Correlation Coefficients for Proportions Used in the Analyses for Addressing Research Questions 1-4 and Selected Participant Factors

For all tests: Prob > |r| under HO: Rho=0

#### Research Question 1

		ARI for PWA
diff. in # of moves	Pearson Correlation	0.20007
	Sig. (2-tail)	0.4929
	N	14

		ARI of SO
diff. in # of moves	Pearson Correlation	-0.04706
	Sig. (2-tail)	0.8731
	N	14

		MPO
diff. in # of moves	Pearson Correlation	-0.23625
	Sig. (2-tail)	0.4161
	N	14

#### Research Question 2

		ARI for PWA
diff. in % opening	Pearson Correlation	-0.41794
	Sig. (2-tail)	0.1370
	N	14

		ARI of SO
diff. in % opening	Pearson Correlation	-0.31879
	Sig. (2-tail)	0.2666
	N	14

		MPO
diff. in % opening	Pearson Correlation	-0.10172
	Sig. (2-tail)	0.7293
	N	14

#### Research Question 3

		ARI for PWA
diff. in % continuing	Pearson Correlation	0.04474
	Sig. (2-tail)	0.8793
	N	14

		ARI of SO
diff. in % continuing	Pearson Correlation	-0.01593
	Sig. (2-tail)	0.9569
	N	14

		MPO
diff. in % continuing	Pearson Correlation	-0.30551
	Sig. (2-tail)	0.2881
	N	14

#### Research Question 4

		ARI of PWA
diff. in % supporting	Pearson Correlation	0.27565
	Sig. (2-tail)	0.3401
	N	14

		ARI of SO
diff. in % supporting	Pearson Correlation	-0.15389
	Sig. (2-tail)	0.5994
	N	14

		MPO
diff. in % supporting	Pearson Correlation	0.08808
	Sig. (2-tail)	0.7646
	N	14

Note: ARI = Autonomy and Relatedness Inventory; MPO = months post-onset aphasia; PWA=spouses with aphasia; SO = spouses without aphasia

## References

- Alexander, M. P. (1997). Aphasia: clinical and anatomic aspects. *Behavioral neurology and neuropsychology*, 133-149.
- Armstrong, E., Fox, S., & Wilkinson, R. (2013). Mild aphasia: Is this the place for an argument? *American Journal of Speech-Language Pathology*, 22(2), S268-S278.
- Armstrong, E., & Mortensen, L. (2006). Everyday talk: Its role in assessment and treatment for individuals with aphasia. *Brain Impairment*, 7(3), 175-189.
- Armstrong, L., Brady, M., Mackenzie, C., & Norrie, J. (2007). Transcription-less analysis of aphasic discourse: A clinician's dream or a possibility? *Aphasiology*, 21(3-4), 355-374.
- Austin, J. L. (1975). *How to do things with words*. Oxford: Oxford University Press.
- Axelrod, B. N., Ricker, J. H., & Cherry, S. A. (1994). Concurrent validity of the MAE visual naming test. *Archives of Clinical Neuropsychology*, 9(4), 317-321.
- Baldo, J. V., Bunge, S. A., Wilson, S. M., & Dronkers, N. F. (2010). Is relational reasoning dependent on language? A voxel-based lesion symptom mapping study. *Brain Lang*, 113(2), 59-64.
- Basso, A., Capitani, E., & Laiacina, M. (1987). Raven's coloured progressive matrices: normative values on 305 adult normal controls. *Funct Neurol*, 2(2), 189-194.
- Basso, A., Capitani, E., & Vignolo, L. A. (1979). Influence of rehabilitation on language skills in aphasic patients. A controlled study. *Arch Neurol*, 36(4), 190-196.
- Beckley, F., Best, W., Johnson, F., Edwards, S., Maxim, J., & Beeke, S. (2013). Conversation therapy for agrammatism: Exploring the therapeutic process of

- engagement and learning by a person with aphasia. *International Journal of Language & Communication Disorders*, 48(2), 220-239.
- Beeke, S., Beckley, F., Johnson, F., Heilemann, C., Edwards, S., Maxim, J., & Best, W. (2015). Conversation focused aphasia therapy: Investigating the adoption of strategies by people with agrammatism. *Aphasiology*, 29(3), 355-377.
- Beeke, S., Johnson, F., Beckley, F., Heilemann, C., Edwards, S., Maxim, J., & Best, W. (2014). Enabling better conversations between a man with aphasia and his conversation partner: Incorporating writing into turn taking. *Research on Language and Social Interaction*, 47(3), 292-305.
- Beeke, S., Maxim, J., & Wilkinson, R. (2007). Using conversation analysis to assess and treat people with aphasia. *Semin Speech Lang*, 28(02), 136-147.
- Benton, A., Hamsher, K. d., & Sivan, A. (1989). *Multilingual Aphasia Examination*. . Iowa City, IA AJA Associates.
- Berg, C. A., Johnson, M. M., Meegan, S. P., & Strough, J. (2003). Collaborative problem-solving interactions in young and old married couples. *Discourse Processes*, 35(1), 33-58.
- Berg, C. A., Wiebe, D. J., Butner, J., Bloor, L., Bradstreet, C., Upchurch, R., . . . Patton, G. (2008). Collaborative coping and daily mood in couples dealing with prostate cancer. *Psychology and aging*, 23(3), 505.
- Berthier, M. L. (2005). Poststroke aphasia. *Drugs & aging*, 22(2), 163-182.
- Blom Johansson, M., Carlsson, M., Östberg, P., & Sonnander, K. (2013). A multiple-case study of a family-oriented intervention practice in the early rehabilitation phase of persons with aphasia. *Aphasiology*, 27(2), 201-226.

- Boles, L. (2015). Establishing alignment in aphasia couples therapy in a woman with Wernicke's aphasia: a case study. *Communication Disorders Quarterly*, 36(4), 219-230.
- Boles, L., & Bombard, T. (1998). Conversational discourse analysis: Appropriate and useful sample sizes. *Aphasiology*, 12(7-8), 547-560.
- Boles, L., & Lewis, M. (2000). Solution-focused co-therapy for a couple with aphasia. *Asia Pacific Journal of Speech, Language and Hearing*, 5(2), 73-78.
- Brookshire, R., & Nicholas, L. S. (1978). *Effects of clinician request and feedback behavior on responses of aphasic individuals in speech and language treatment sessions*. Paper presented at the Clinical Aphasiology: Proceedings of the Conference 1978.
- Brookshire, R. H. (2007). *Introduction to neurogenic communication disorders*. St. Louis: Mosby Elsevier.
- Carlomagno, S., Blasi, V., Labruna, L., & Santoro, A. (2000). The role of communication models in assessment and therapy of language disorders in aphasic adults. *Neuropsychological Rehabilitation*, 10(3), 337-363.
- Carragher, M., Sage, K., & Conroy, P. (2015). Preliminary analysis from a novel treatment targeting the exchange of new information within storytelling for people with nonfluent aphasia and their partners. *Aphasiology*, 29(11), 1383-1408.
- Chapey, R., Duchan, J. F., Elman, R. J., Garcia, L. J., Kagan, A., Lyon, J. G., & Simmons-Mackie, N. (2008). Life-participation approach to aphasia: A statement of values for the future. In R. Chapey (Ed.), *Language Intervention Strategies in*

*Aphasia and Related Neurogenic Communication Disorders* (5th ed., pp. 279-289). Philadelphia: Wolters Kluwer.

Cheng, S., & Strough, J. (2004). A comparison of collaborative and individual everyday problem solving in younger and older adults. *The International Journal of Aging and Human Development*, 58(3), 167-195.

Coelho, C. A., Sinotte, M. P., & Duffy, J. R. (2008). Schuell's stimulation approach to rehabilitation. In R. Chapey (Ed.), *Language intervention strategies in aphasia and related neurogenic communication disorders* (5th ed., pp. 403-449). Philadelphia: Wolters Kluwer.

Correll, A., van Steenbrugge, W., & Scholten, I. (2010). Judging conversation: How much is enough? *Aphasiology*, 24(5), 612-622.

Croteau, C., & Le Dorze, G. (2006). Overprotection, "speaking for", and conversational participation: A study of couples with aphasia. *Aphasiology*, 20(02-04), 327-336.

Croteau, C., Le Dorze, G., & Baril, G. (2007). Development of a procedure to evaluate the contributions of persons with aphasia and their spouses in an interview situation. *Aphasiology*, 21(6-8), 791-801.

Croteau, C., Vychytil, A. M., Larfeuil, C., & Le Dorze, G. (2004). "Speaking for" behaviours in spouses of people with aphasia: A descriptive study of six couples in an interview situation. *Aphasiology*, 18(4), 291-312.

Damasio, A. R. (1981). The nature of aphasia: Signs and symptoms. In M. T. Sarno (Ed.), *Acquired aphasia* (pp. 51-65). New York: Academic Press.

Damasio, A. R. (1992). Aphasia. *New England Journal of Medicine*, 326(8), 531-539.

- Damasio, H. (2008). Neural basis of language disorders. In R. Chapey (Ed.), *Language intervention strategies in aphasia and related neurogenic communication disorders* (5th ed., pp. 20-41). Philadelphia: Wolters Kluwer.
- Darley, F. L. (1982). *Aphasia*. Philadelphia: WB Saunders Company.
- Davis, G. A. (2007). *Aphasiology: Disorders and Clinical Practice*. Needham Heights, MA: Allyn & Bacon.
- Davis, G. A., & Wilcox, M. J. (1981). Incorporating parameters of natural conversation in aphasia treatment. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia* (pp. 169-193). Baltimore: Williams & Wilkins.
- Davis, G. A., & Wilcox, M. J. (1985). *Adult aphasia rehabilitation: Applied pragmatics*: College-Hill Press.
- Denes, F., Semenza, C., Stoppa, E., & Gradenigo, G. (1978). Selective improvement by unilateral brain-damaged patients on Raven Coloured Progressive Matrices. *Neuropsychologia*, 16(6), 749-752.
- Dixon, R. A., & Gould, O. N. (1996). Adults telling and retelling stories collaboratively. *Interactive minds: Life-span perspectives on the social foundation of cognition*, 221-241.
- Dore, J. (1974). A pragmatic description of early language development. *Journal of psycholinguistic Research*, 3(4), 343-350.
- Doyle, P. J., Thompson, C. K., Oleyar, K., Wambaugh, J., & Jackson, A. (1994). The effects of setting variables on conversational discourse in normal and aphasic adults. *Clinical aphasiology*, 22, 135-144.



- Eggs, S. (1994). *An introduction to systemic functional linguistics*. London: Printer Publishers.
- Eggs, S., & Slade, D. (2004). *Analysing casual conversation*. London: Equinox Publishing.
- Elman, R. J. (2005). *Social and life participation approaches to aphasia intervention* (L. LaPointe Ed. 3rd ed.). New York: Thieme.
- Flanagan, J. L., & Jackson, S. T. (1997). Test-retest reliability of three aphasia tests: Performance of non-brain-damaged older adults. *J Commun Disord*, 30(1), 33-43.
- Florance, C. L. (1981). *Methods of communication analysis used in family interaction therapy*. Paper presented at the Clinical Aphasiology: Proceedings of the Conference 1981.
- Fox, S., Armstrong, E., & Boles, L. (2009). Conversational treatment in mild aphasia: A case study. *Aphasiology*, 23(7-8), 951-964.
- Frattali, C. (1998). Measuring modality-specific behaviors, functional abilities, and quality of life. In C. Frattali (Ed.), *Outcome measurement in speech-language pathology* (pp. 55-88). New York: Thieme.
- Frattali, C. M. (1992). Functional assessment of communication: Merging public policy with clinical views. *Aphasiology*, 6(1), 63-83.
- Fromm, D., Forbes, M., Holland, A., Dalton, S. G., Richardson, J., & MacWhinney, B. (2017). Discourse Characteristics in Aphasia Beyond the Western Aphasia Battery Cutoff. *American Journal of Speech-Language Pathology*, 26(3), 762-768.

- Gardiner, B. J., & Brookshire, R. H. (1972). Effects of unisensory and multisensory presentation of stimuli upon naming by aphasic subjects. *Language and speech*, 15(4), 342-357.
- Gates, A. I. (1958). *Gates Silent Reading Test (Type D, Form 1)*. New York: Columbia University Teachers College Press.
- Goodglass, H. (1993). *Understanding aphasia*. San Diego: Academic Press.
- Goodglass, H., & Kaplan, E. (1983). *Boston diagnostic aphasia examination booklet*: Lea & Febiger.
- Goodglass, H., Kaplan, E., & Barresi, B. (2001). *The assessment of aphasia and related disorders*: Lippincott Williams & Wilkins.
- Goodglass, H., & Wingfield, A. (1997). Word-Finding Deficits in Aphasia: Brain-Behavior. In H. Goodglass & A. Wingfield (Eds.), *Anomia: Neuroanatomical and cognitive correlates* (pp. 5-27). San Diego: Academic Press.
- Hall, L. A., & Kiernan, B. S. (1992). Psychometric Assessment of a Measure of the Quality of Primary Intimate Relationships. *The Journal of Health Behavior, Education, & Promotion*, 16(4), 30-39.
- Halliday, M. A. K. (1985). *An Introduction to Functional Grammar*. London: Edward Arnold.
- Hallowell, B., & Chapey, R. (2008). Introduction to language intervention strategies in adult aphasia. In R. Chapey (Ed.), *Language intervention strategies in aphasia and related neurogenic communication disorders* (Vol. 5, pp. 3-19). Philadelphia: Wolters Kluwer.

- Heavey, C. L., Christensen, A., & Malamuth, N. M. (1995). The longitudinal impact of demand and withdrawal during marital conflict. *Journal of Consulting and Clinical Psychology, 63*(5), 797-801. doi: 10.1037/0022-006X.63.5.797
- Helm-Estabrooks, N. (2001). *Cognitive Linguistic Quick Test: Examiner's Manual*: Psychological Corporation.
- Henderson, L. W., Frank, E. M., Pigatt, T., Abramson, R. K., & Houston, M. (1998). Race, gender, and educational level effects on Boston Naming Test scores. *Aphasiology, 12*(10), 901-911.
- Hersh, D., Godecke, E., Armstrong, E., Ciccone, N., & Bernhardt, J. (2016). "Ward talk": Nurses' interaction with people with and without aphasia in the very early period poststroke. *Aphasiology, 30*(5), 609-628.
- Holland, A. (1977). Some practical considerations in the treatment of aphasic patients. In M. Sullivan & M. Kommers (Eds.), *Rationale for adult aphasia therapy* (pp. 167-180). Omaha, NE: University of Nebraska Press.
- Holland, A. L. (1991). Pragmatic aspects of intervention in aphasia. *Journal of Neurolinguistics, 6*(2), 197-211.
- Holland, A. L., & Goldberg, S. A. (2007). *Counseling in communication disorders: A wellness perspective*. San Diego: Plural Publication.
- Hopper, T., Holland, A., & Rewega, M. (2002). Conversational coaching: Treatment outcomes and future directions. *Aphasiology, 16*(7), 745-761.
- Hoppmann, C. A., & Blanchard-Fields, F. (2011). Problem-solving variability in older spouses: how is it linked to problem-, person-, and couple-characteristics? *Psychology and aging, 26*(3), 525.

- Howard, D., & Hatfield, F. M. (1987). *Aphasia therapy: Historical and contemporary issues*. London: Psychology Press.
- Husak, R. S., Marshall, R. C., & Rowles, G. D. (2015). Understanding the experience of driving with a passenger with aphasia. *Aphasiology*, 1-17.
- Jaccard, J., Brinberg, D., & Dittus, P. (1989). Couple decision making: individual-and dyadic-level analysis *Dyadic decision making* (pp. 81-103): Springer.
- Johnson, M. D., Cohan, C. L., Davila, J., Lawrence, E., Rogge, R. D., Karney, B. R., . . . Bradbury, T. N. (2005). Problem-solving skills and affective expressions as predictors of change in marital satisfaction. *Journal of Consulting and Clinical Psychology*, 73(1), 15.
- Kagan, A. (1995). Revealing the competence of aphasic adults through conversation: A challenge to health professionals. *Top Stroke Rehabil*, 2(1), 15-28.
- Kagan, A. (1998). Supported conversation for adults with aphasia: Methods and resources for training conversation partners. *Aphasiology*, 12(9), 816-830.
- Kagan, A., & Gailey, G. F. (1993). Functional is not enough: Training conversation partners for aphasic adults *Aphasia treatment* (pp. 199-225): Springer.
- Kagan, A., Simmons-Mackie, N., Rowland, A., Huijbregts, M., Shumway, E., McEwen, S., . . . Sharp, S. (2008). Counting what counts: A framework for capturing real-life outcomes of aphasia intervention. *Aphasiology*, 22(3), 258-280.
- Kaplan, E., Goodglass, H., & Weintraub, S. (2001). *Boston naming test* (2nd ed.). Austin, Tx: Pro-ed.

- Kauhanen, M.-L., Korpelainen, J., Hiltunen, P., Määttä, R., Mononen, H., Brusin, E., . . . Myllylä, V. (2000). Aphasia, depression, and non-verbal cognitive impairment in ischaemic stroke. *Cerebrovascular Diseases, 10*(6), 455-461.
- Kelley, D. (2011). *Marital communication*. Molden, MA: Polity.
- Kelly, S., Byrne, K., & Holler, J. (2011). Raising the ante of communication: evidence for enhanced gesture use in high stakes situations. *Information, 2*(4), 579-593.
- Kertesz, A. (1982). *The Western Aphasia Battery* (New York: Grune & Stratton): Inc.
- Kertesz, A. (2007). *Western aphasia battery-revised (WAB-R)*. New York.
- Kertesz, A., & McCabe, P. (1975). Intelligence and aphasia: performance of aphasics on Raven's coloured progressive matrices (RCPM). *Brain Lang, 2*, 387-395.
- Kimble, K. J., & Margrett, J. A. (2009). Older adults' interactive behaviors during collaboration on everyday problems: Linking process and outcome. *International Journal of Behavioral Development*.
- Kiran, S. (2012). What is the nature of poststroke language recovery and reorganization? *ISRN neurology, 2012*.
- Kohnert, K. J., Hernandez, A. E., & Bates, E. (1998). Bilingual performance on the Boston Naming Test: preliminary norms in Spanish and English. *Brain Lang, 65*(3), 422-440.
- Krueger, D. L. (1983). Pragmatics of dyadic decision making: A sequential analysis of communication patterns. *Western Journal of Communication (includes Communication Reports), 47*(2), 99-117.

- Krueger, D. L. (1985). Communication patterns and egalitarian decision making in dual-career couples. *Western Journal of Communication (includes Communication Reports)*, 49(2), 126-145.
- Krueger, D. L., & Smith, P. (1982). Decision-Making Patterns of Couples: A Sequential Analysis. *Journal of Communication*, 32(3), 121-134.
- LaPointe, L., & Horner, J. (1998). Reading Comprehension Battery for Adults–2. Austin, TX: ProEd.
- LaPointe, L. L. (2005). Foundations: Adaptation, Accommodation, Aristos. In L. L. LaPointe (Ed.), *Aphasia and related neurogenic language disorders* (3rd ed., pp. 1-18). New York: Thieme.
- Le Dorze, G., & Brassard, C. (1995). A description of the consequences of aphasia on aphasic persons and their relatives and friends, based on the WHO model of chronic diseases. *Aphasiology*, 9(3), 239-255.
- Lepore, S. J., & Helgeson, V. S. (1998). Social constraints, intrusive thoughts, and mental health after prostate cancer. *Journal of Social and Clinical Psychology*, 17(1), 89.
- Lesser, R., & Milroy, L. (2014). *Linguistics and aphasia: Psycholinguistic and pragmatic aspects of intervention*. New York: Routledge.
- Levinson, B. M. (1959). A comparison of the Coloured Progressive Matrices (CPM) with the Wechsler Adult Intelligence Scale (WAIS) in a normal aged white male population. *Journal of clinical psychology*, 15(3), 288-291.
- Lezak, M. D., Howieson, D. B., Bigler, E., D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). New York: Oxford University Press.

- Lock, S., Wilkinson, R., Bryan, K., Maxim, J., Edmundson, A., Bruce, C., & Moir, D. (2001). Supporting partners of people with aphasia in relationships and conversation (SPPARC). *International Journal of Language & Communication Disorders, 36*(S1), 25-30.
- Lomas, J., Pickard, L., Bester, S., Elbard, H., Finlayson, A., & Zoghaib, C. (1989). The communicative effectiveness index: Development and psychometric evaluation of a functional communication measure for adult aphasia. *Journal of Speech and Hearing Disorders, 54*(1), 113-124.
- Lyon, J. G. (1992). Communication use and participation in life for adults with aphasia in natural settings: The scope of the problem. *American Journal of Speech-Language Pathology, 1*(3), 7-14.
- Lyon, J. G. (1997). *Coping with aphasia*. San Diego: Singular Publishing Group.
- Mackey, R. A., & O'Brien, B. A. (1995). *Lasting marriages: Men and women growing together*. Westport, Connecticut: Praeger.
- Manzo, J. F., Blonder, L. X., & Bums, A. F. (1995). The social-interactional organisation of narrative and narrating among stroke patients and their spouses. *Sociology of Health & Illness, 17*(3), 307-327.
- Margrett, J. A. (1999). *Collaborative cognition and aging: A pilot study*. (Unpublished doctoral dissertation), Wayne State University, Detroit.
- Margrett, J. A., & Marsiske, M. (2002). Gender differences in older adults' everyday cognitive collaboration. *International Journal of Behavioral Development, 26*(1), 45-59.

- Marshall, R. C. (1978). *Clinician controlled auditory stimulation for aphasic adults*.  
Beaverton, OR: CC Publications.
- McLaughlin, G. H. (1969). SMOG grading-a new readability formula. *Journal of reading*, 12(8), 639-646.
- Meegan, S. P., & Berg, C. A. (2002). Contexts, functions, forms, and processes of collaborative everyday problem solving in older adulthood. *International Journal of Behavioral Development*, 26(1), 6-15.
- Mlcoch, A. G., & Metter, E. J. (2008). *Medical aspects of stroke rehabilitation* (R. Chapey Ed. 5th ed.). Philadelphia: Wolters Klumer.
- National Aphasia Association. Retrieved online at: <https://www.aphasia.org/aphasia-faqs/>
- Neils, J., Baris, J. M., Carter, C., Dell'aira, A. L., Nordloh, S. J., Weiler, E., & Weisiger, B. (1995). Effects of age, education, and living environment on Boston Naming Test performance. *Journal of Speech, Language, and Hearing Research*, 38(5), 1143-1149.
- Nguyen, T.-A., Page, A., Aggarwal, A., & Henke, P. (2007). Social determinants of discharge destination for patients after stroke with low admission FIM instrument scores. *Arch Phys Med Rehabil*, 88(6), 740-744.
- Nicholas, L. E., & Brookshire, R. H. (1993). A system for quantifying the informativeness and efficiency of the connected speech of adults with aphasia. *Journal of Speech, Language, and Hearing Research*, 36(2), 338-350.
- Papathanasiou, I., Coppens, P., & Potagas, C. (2012). *Aphasia and related neurogenic communication disorders*: Jones & Bartlett Publishers.



- Parr, S. (1994). Coping with aphasia: Conversations with 20 aphasic people. *Aphasiology*, 8(5), 457-466.
- Parr, S., Byng, S., & Gilpin, S. (1997). *Talking about aphasia: Living with loss of language after stroke*. Philadelphia: Open University Press.
- Pedersen, P. M., Stig Jørgensen, H., Nakayama, H., Raaschou, H. O., & Olsen, T. S. (1995). Aphasia in acute stroke: incidence, determinants, and recovery. *Annals of neurology*, 38(4), 659-666.
- Porch, B. E. (1967). *The Porch Index of Communicative Ability: Administration, Scoring, and Interpretation*. Palo Alto, CA: Consulting Psychologists.
- Prutting, C. A., & Kittchner, D. M. (1987). A clinical appraisal of the pragmatic aspects of language. *Journal of Speech and Hearing Disorders*, 52(2), 105-119.
- Rankin-Esquer, L. A., Burnett, C. K., Baucom, D. H., & Epstein, N. (1997). Autonomy and relatedness in marital functioning. *Journal of Marital and Family Therapy*, 23(2), 175-190.
- Raush, H. L., Barry, W. A., Hertel, R. K., & Swain, M. A. (1974). *Communication conflict and marriage*. San Francisco: Jossey-Bass.
- Rautakoski, P. (2011a). Partners' self-perceptions of the use of different communication strategies during total communication intervention. *Aphasiology*, 25(12), 1523-1542.
- Rautakoski, P. (2011b). Training total communication. *Aphasiology*, 25(3), 344-365.
- Rautakoski, P. (2012). Self-perceptions of functional communication performance during total communication intervention. *Aphasiology*, 26(6), 826-846.

- Rautakoski, P. (2014). Communication style before and after aphasia: A study among Finnish population. *Aphasiology*, 28(3), 359-376.
- Raven, J. C. (1995). *Raven's colored progressive matrices*. San Antonio, TX: The Psychological Corporation.
- Rosenbek, J. C., LaPointe, L. L., & Wertz, R. T. (1989). *Aphasia: A clinical approach*. Austin: Pro Ed.
- Saldert, C., Backman, E., & Hartelius, L. (2013). Conversation partner training with spouses of persons with aphasia: A pilot study using a protocol to trace relevant characteristics. *Aphasiology*, 27(3), 271-292.
- Saldert, C., Johansson, C., & Wilkinson, R. (2015). An interaction-focused intervention approach to training everyday communication partners: A single case study. *Aphasiology*, 29(3), 378-399.
- Schaefer, E. S. (1965). Children's reports of parental behavior: An inventory. *Child development*, 413-424.
- Schuell, H., Jenkins, J. J., & Jimenez-Pabon, E. (1964). *Aphasia in adults*. New York: Harper & Row.
- Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language* (Vol. 626). Cambridge: Cambridge University press.
- Shewan, C. M., & Kertesz, A. (1980). Reliability and validity characteristics of the Western Aphasia Battery (WAB). *Journal of Speech and Hearing Disorders*, 45(3), 308-324.

- Sillars, A. L., & Kalbflesch, P. J. (1989). Implicit and explicit decision-making styles in couples. In D. Brinberg & J. Jaccard (Eds.), *Dyadic decision making* (pp. 179-215). New York: Springer.
- Simmons-Mackie, N. (2008). *Social approaches to aphasia intervention* (R. Chapey Ed. 5 ed.). Philadelphia: Wolters Kluwer.
- Simmons-Mackie, N., Kearns, K., & Potechin, G. (2005). Treatment of aphasia through family member training. *Aphasiology*, 19(6), 583-593.
- Simmons-Mackie, N., King, J. M., & Beukelman, D. R. (2013). *Supporting communication for adults with acute and chronic aphasia*. Baltimore: Brookes Publishing.
- Simmons-Mackie, N., Raymer, A., Armstrong, E., Holland, A., & Cherney, L. R. (2010). Communication partner training in aphasia: a systematic review. *Arch Phys Med Rehabil*, 91(12), 1814-1837. doi: 10.1016/j.apmr.2010.08.026
- Simmons-Mackie, N., Raymer, A., & Cherney, L. R. (2016). Communication partner training in aphasia: An updated systematic review. *Arch Phys Med Rehabil*, 97(12), 2202-2221. e2208.
- Spreen, O., & Benton, A. L. (1977). *Neurosensory center comprehensive examination for aphasia*. Victoria, British Columbia: University of Victoria.
- Spreen, O., & Risser, A. (1998). Assessment of aphasia. In M. T. Sarno (Ed.), *Acquired aphasia* (3rd ed., pp. 71-156). San Diego: Academic Press New York.
- Strough, J., Cheng, S., & Swenson, L. M. (2002). Preferences for collaborative and individual everyday problem solving in later adulthood. *International Journal of Behavioral Development*, 26(1), 26-35.

- Strough, J., & Margrett, J. (2002). Overview of the special section on collaborative cognition in later adulthood. *International Journal of Behavioral Development*, 26(1), 2-5.
- Strough, J., Patrick, J. H., Swenson, L. M., Cheng, S., & Barnes, K. A. (2003). Collaborative everyday problem solving: Interpersonal relationships and problem dimensions. *The International Journal of Aging and Human Development*, 56(1), 43-66.
- Thomas, E. J. (1977). *Marital communication and decision making*. New York: Free Press.
- Tombaugh, T. N., & Hubiey, A. M. (1997). The 60-item Boston Naming Test: Norms for cognitively intact adults aged 25 to 88 years. *J Clin Exp Neuropsychol*, 19(6), 922-932.
- Van Demark, A. A., Lemmer, E. C., & Drake, M. L. (1982). Measurement of reading comprehension in aphasia with the RCBA. *Journal of Speech and Hearing Disorders*, 47(3), 288-291.
- Watson, H. J., Mulford, W. R., & Vallee, J. M. (1981). *Structured experiences and group development*: Curriculum Development Centre.
- Weger Jr, H., & Canary, D. J. (2010). Conversational argument in close relationships: A case for studying argument sequences. *Communication Methods and Measures*, 4(1-2), 65-87.
- Weigl, E. (1961). The phenomenon of temporary deblocking in aphasia. *STUF-Language Typology and Universals*, 14(1-4), 337-364.

- Wilcox, M. J., Davis, G. A., & Youse, K. M. (2005). Speech act analysis of aphasic communication in individual and group settings. *Aphasiology*, 19(7), 683-690.
- Wilkinson, R., Bryan, K., Lock, S., Bayley, K., Maxim, J., Bruce, C., . . . Moir, D. (1998). Therapy using conversation analysis: Helping couples adapt to aphasia in conversation. *International Journal of Language & Communication Disorders*, 33(sup1), 144-149.
- Wilkinson, R., Bryan, K., Lock, S., & Sage, K. (2010). Implementing and evaluating aphasia therapy targeted at couples' conversations: A single case study. *Aphasiology*, 24(6-8), 869-886.
- Wilkinson, R., Lock, S., Bryan, K., & Sage, K. (2011). Interaction-focused intervention for acquired language disorders: Facilitating mutual adaptation in couples where one partner has aphasia. *Int J Speech Lang Pathol*, 13(1), 74-87.
- World Health Organization. (2001). *International classification of functioning, disability and health: ICF*. Geneva, Switzerland: World Health Organization.

**Vita**  
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**Education**

Middle Tennessee State University	B.A.	Philosophy
University of Kentucky	M.S.	Communication Sciences & Disorders

**Professional Positions**

2016-present	Speech-Language Pathologist, Frazier Rehab Institute, Louisville, KY
2016-present	Speech-Language Pathologist, Baptist Health Louisville, Louisville, KY
2012-2016	Speech-Language Pathologist, Baptist Health Lexington, Lexington, KY
2012-2014	Speech-Language Pathologist, Evergreen Rehabilitation, Louisville, KY

**Theses**

Husak, R.S. (2012). *Effects of Response Elaboration Training on Sentence Production of Persons with Chronic Agrammatic Aphasia*. Unpublished Masters Thesis, University of Kentucky.

**Manuscripts**

Afshangian, F., Nami, M., Foroughi, A. A., Rahimi, A., Husak, R. S., Fabbro, F., Tomasino, B., Kremer, C. (2017). Coprolalia in aphasic patients with stroke: A longitudinal observation from the BLAS<sub>2</sub>T database. *Neurocase*, 23(5-6), 249-262.

Husak, R. S. & Page, C. G. (2017). The effectiveness of spaced retrieval on improving self-feeding and use of compensatory swallowing strategies in individuals with dementia residing in a long-term care facility. *Evidence-Based Practice Briefs*, 12(2), 1-11.

Husak, R. S. Marshall, R. C., & Rowles, G. D. (2016). Understanding the experience of driving with a passenger with aphasia. *Aphasiology*, 30(10), 1134-1150.

**Awards**

- Academy of Neurologic Communication Disorders and Sciences (ANCDS) Conference Fellowship, 2017
- ASHA Award for Continuing Education (ACE), February 2016
- National Institute of Deafness and Other Communication Disorders (NIDCD)-funded research Symposium in Clinical Aphasiology (RSCA) Fellowship, 2013
- National Institute on Deafness and Other Communication Disorders (NIDCD)-funded research Symposium in Clinical Aphasiology (RSCA) Fellowship, 2012
- University of Kentucky College of Health Sciences Robinson Graduate Award for Research Creativity, 2012
- University of Kentucky College of Health Sciences Enhancement Scholarship, 2011
- Simpson/Switzer Speech and Hearing Scholarship, 2011