**A comparative analysis of informational content in a descriptive narrative task completed by people with aphasia**

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**Introduction**

Speech and language skills are interactive tools used among interlocutors. These tools are used to express wants, needs, opinions, and ideas. Without the use of speech and language, people may not have the ability to connect with one another. Language is important for human interplay (Bronken, 2012). These skills are used to communicate with family members, friends, coworkers, and neighbors. Participating in conversation creates a higher quality of life (Corsten, 2015). This high quality of life can be diminished by the onset of a stroke or traumatic brain injury (TBI). A stroke or TBI may be the cause of an acquired language disorder. “Acquired language disorders after stroke are strongly associated with left hemisphere damage” which houses the language portion in the brain (Gajardo-Vidal, 2018). A type of acquired neurogenic language disorder is aphasia (Corsten, 2015). This disorder can affect many areas of life including comprehension skills, speech production, and narrative story telling.

There are various types of aphasia including different deficits for each. One example of a type of aphasia is Anomic Aphasia. Anomic aphasia affects lexical abilities such as vocabulary and word retrieval. This impairment is difficult when constructing narratives because of limited grammatical use. People with anomic aphasia have many narrative story telling difficulties such as a lowered speech rate, reduced words and length in words, and more speech errors (Andreetta, 2012). All of the participants within this current study have acquired fluent aphasia. Fluent aphasia has some similar difficulties including phonological impairments, and lexical-semantic difficulties (Glosser, 1990). We can compare anomic aphasia and fluent aphasia by recognizing how various types of aphasia can affect different language skills. Anomic aphasia typically results in grammatical limitations while fluent aphasia can result in narrative story telling difficulties. More specifically, researchers have recognized frustration with coherence and cohesion in conversation and narrative story telling among people with fluent aphasia (Glosser, 1990). Cohesion can be described as determining meaning between events of conversation or narratives (Glosser, 1990). Fluent aphasia may have a great negative affect on communication. This type of aphasia typically does not affect speech articulation abilities. Because of this, PWA will have the capability to express words for a story but may not understand the meaning or connection within the story.

 Aphasia occurs in about 30% of patients who experience a stroke (Corsten, 2015).  There are two different types of strokes, ischemic and hemorrhagic.  These two types of strokes cause the blood in the brain to either cease to flow (ischemic) or bleed throughout (hemorrhagic) (Hankey, 2016). Although aphasia can be a result of either ischemic or hemorrhagic strokes, research has shown ischemic stroke recovery occurs earlier and faster than hemorrhagic strokes (Sinanovic, 2011). It is important to begin treatment as soon as possible for stroke patients as the greatest amount of recovery occurs the first three months after the onset of stroke (Sinanovic, 2011). Various professionals work with patients after a stroke depending on the type and severity of impairment. One type of professional that work close with stroke patients who have an acquired language disorder are Speech-Language Pathologists (SLP). SLPs treat individuals with speech and language disorders. They also work with people who have cognitive impairments such as memory, problem solving, and deductive reasoning skills. Treatment strategies can be used for people with aphasia (PWA) to enhance speech and language skills. Before treatment can be implemented, SLPs have to determine goals for the client to work on and modify those goals as therapy progresses over a period of time. An example of a long-term goal may be teaching techniques for improving story telling skills.

Narrative story telling shapes communication abilities as well as impacts experiences by expanding upon imagination (Schiffrin, 2010). Story telling greatly relates to speech and language as individuals must utilize vocabulary, sequencing skills, and memory. These skills begin to grow at a young age as narratives help children learn logical, temporal, and causal relationships between events that occur (Duinmeijer, 2012). Story telling abilities will then build and become essential for relationships and communication. Narratives drive skills such as knowledge of the world or using inference or critical thinking to fully understand the message (Duinmeijer, 2012). Different types of narratives shape one’s thinking about expectations and opinions (Schiffrin, 2010). As noted, there are vast amounts of skills required to create and share a narrative. When one of these skills becomes inept, the narrative may lose its meaning or context.

Additionally, there are many ways in which experts have described the sequencing of a narrative. Vladimir Propp, writer of *Morphology of Folk Tale*, created 31 functions that categorize the sequencing of a plot. Within this book, Propp describes the summary of each function, the definition, and common signs to look for within a story (Propp, 1968). For example, the first function is absentation. The function of this is a member of the older generation becoming absent whether through death, or leaving the home, or going on a journey (Propp, 1968). These functions will be utilized and identified during this study to understand common function features among PWA. However, only 16 of Propp’s functions are used within the story of Cinderella (Martinsen, 2011). Another source of sequencing in narration is common among SLPs and teachers. This kind of sequencing is identified as the major components of story grammar. Within this structure, there are seven components each identifying a specific part of the plot within the story. Both types of sequencing include specific story elements. Students are taught at a young age to include a beginning, middle, and end of a story. This will allow for the pieces of the story to connect and draw conclusions and meaning.

**Methods**

 AphasiaBank is a database used by researchers that include PWA. Within this database, researchers have access to videos of PWA completing various tasks including a narrative story telling task. The participants within this system have an assigned pseudonym which will be the same pseudonym used for our own data collection. The participants within this system also vary by age, gender, type of aphasia, socioeconomic background, education, etc. The story narrative that is completed within these videos is the story of Cinderella. Each individual is prompted the same way by the facilitator using a script. The facilitator will begin by providing a picture book of Cinderella followed by the prompt, “I’m going to ask you to tell a story. Have you ever heard the story of Cinderella... Do you remember much about it? These pictures might remind you of how it goes. Take a look at the pictures and then I’ll put the book away, and ask you to tell me the story in your own words… Now tell me as much of the story of Cinderella as you can. You can use any details you know about the story, as well as the pictures you just looked at.” After this script has been prompted, a transcription was typed out and can be used to follow along the story. I have taken the transcription from 10 participants to collect data from. These 10 participants were selected randomly among people with fluent aphasia in the AphasiaBank system. The transcriptions are used as a reference for the chronological order of the story.

 We have placed these transcriptions within separate word documents. ***Figure 1*** shows participant’s CMU01a retelling of the story of Cinderella. Each part of the figure in which the participant speaks is proceeded by \*PAR:. The facilitator of the session is indicated by the \*INV:. This story begins after already being prompted by the facilitator. Additionally, the database has indicated when the participant had made a nonword, semantic, or formal error. If an error was made, the target word is provided as such [:\_\_\_\_\_\_\_\_]. An example of this can be found in line 227 when the participant says “sipper” instead of “slipper.” The target word is provided next to “sipper.”

212 @G: Cinderella

213 \*PAR: well ‡ <Cinderella was &-uh a> [//] &-uh Cinderella is a &-um nice

214 girl but she worked so hard .

215 \*PAR: and the &s stepmother is mean for [: to] [\* s:r:prep] her .

216 \*PAR: and anyway <the the> [/] &-um the &s sue [: two] [\* p:w] sisters

217 wanna go to the ball .

218 \*PAR: <and and and> [/] &-um and the &-um &s sue [: two] [\* p:w] sisters

219 went to the ball .

220 \*PAR: and then I think that Cinderella has a [/] &-um a &-uh +...

221 \*PAR: I don't know but &-um she &-uh went to the ball .

222 \*PAR: and &-uh <the the> [/] &-uh the prince has a [/] a glass sipper

223 [: slipper] [\* p:w] I think .

224 \*PAR: and then the [/] the &p prince wants to know &ha &h &-uh who fɪps@u

225 [: fits] [\* p:n] the +//.

226 \*PAR: no ‡ &f &f &f the &-uh pɪnts@u [: prince] [\* p:n] wants to know &f

227 &sh &-uh the [//] who the sipper [: slipper] [\* p:w] fits .

228 \*PAR: and <the the> [/] the two sisters wanna go and [/] &s and try on

229 the sippers [: slippers] [\* p:w] but no &=head:shake .

230 \*PAR: but <it was Cinderella that> [/] &-uh [x 3] Cinderella [//] it was

231 &-uh Cinderella that fits the glass sippers [: slippers] [\* p:w] .

232 \*PAR: and &w &w they [/] &h &h &-uh we had +//.

233 \*PAR: no . [+ esc]

234 \*PAR: they live hɛvrɪ@u [: happily] [\* n:k] ever after .

235 \*INV: okay .

236 \*PAR: &=laughs . [+ exc]

***Figure 1***

 Once each of these transcriptions are placed in a word document, we have paraphrased the story being told by the participants. We have broken down this paraphrased speech into steps to make data collection easier to follow. These steps were compiled within a spreadsheet along with the age of the participant, years of education, and duration of years since the onset of aphasia. ***Figure 2*** shows the layout of these components of the study. The functions of the Cinderella story were determined based upon the descriptions given by Propp in his book, *Morphology of Folk Tale.* There are 11 functions out of 31 identified within the stories told by the participants. The first function described is absentation which is the loss or departure of a character within the story. In this case, Cinderella’s father passes away. Next, is interdiction, or emphasis on either continuing or discontinuing an action. Within the story of Cinderella, this would be referred when the stepmother urges Cinderella to clean and be the maid of the house. After this comes trickery. At this point in the story the villain, the evil stepmother, promises Cinderella if she cleans, she may go to the ball.

Within Propp’s functions, departure proceeds the first donor function and the receipt of agent. However, within the story of Cinderella the stepsisters tear Cinderella’s dress and the fairy godmother arrives before Cinderella departs for the ball. In Propp’s vision, a departure may be a departure on a journey such as when Rapunzel first exists her castle and starts her journey to the floating lanterns in the film, *Tangled.* In this particular study, we will identify departure as Cinderella departing for the ball. Before this occurs, the first donor function happens in which Cinderella is tested. This occurs when the stepsisters tear Cinderella’s dress so she may not go to the ball. According to Propp, when this occurs, it prepares the hero to receive a magical agent or helper (Propp, 1968). The receipt of agent would be receiving a magical agent for help. Cinderella receives the help from the Fairy Godmother who turns the animals into helpers and then provides a dress for Cinderella. It may be noted within ***Figure 2*** that functions and components were used on more than one step. This is due to multiple steps being identified within the same function. After the ball, the hero returns home and is pursued by the prince to find the girl who dropped her slipper. The term used by Propp for unfounded claims is “a false hero presents unfounded claims” (Propp, 1968). For Propp, he identifies this step as another character besides the hero presents the prize or item. For our purposes, we have identified this function as the stepsisters trying on the glass slipper. Although the stepsisters are not presenting a prize themselves, they are using a false identity to present themselves as someone they are not. The blind character then recognized the hero when the glass slipper fit. The last step of Propp’s functions is the wedding. We characterized this function by participants indicating their marriage or using the words “happily ever after.”

 Each part of the story components was also broken down to fit the story of Cinderella. For setting and character, this was labeled by Cinderella’s role in the house, the absence of her father, and the introduction of the evil stepmother. The initiating event in Cinderella is the daughters being invited to the ball. This event would also be Cinderella’s clothes being torn. The internal response to this is the introduction of the Fairy Godmother. The internal plan is the scene of Cinderella at the ball. The prince then attempts and takes action to find the girl who fit the glass slipper. As a direct consequence of this, the stepdaughters tried to fit the slipper. The final reaction would be Cinderella fitting the slipper and the wedding between her and the prince.

 The functions and components have ambiguity as not each participant tells the exact same story. Since the purpose of this study was to use the functions and components as a technique for other stories, we fit the functions and components to the steps as best fit by Propp.



***Figure 2***



**Results**

 The main question of this research is, can SLPs use either Propp’s functions or story grammar components within treatment to improve narrative story telling abilities? To answer this question, we looked at the relevance of each of the functions as well as components used by each of the participants. The number of instances in which the participants used the function or component was counted. ***Figures 3*** and ***4*** show a percentage out of 100 in which the participants used the function and component. For example, absentation was included within 3 out of 10 participant’s stories so the bar stops at 30%. The results of this data collection show that interdiction was included for 9 out of 10 participants. This means that 9 participants indicated that Cinderella was the maid of the household and used for work.

***Figure 4***

***Figure 3***

**Key**

1 = Setting/Character

2 = Initiating Event

3 = Internal Response

4 = Internal Plan

5 = Attempt/Action

6 = Direct Consquences

7 = Reactions

**Key**

1 = Absentation

2 = Interdiction

3 = Trickery

4 = Departure

5 = First Donor Function

6 = Receipt of Agent

7 = Hero Returns

8 = Hero is Pursued

9= Unfounded Claims

10 = Hero is Recognized

11 = The Wedding

 The story elements for both the functions and components are in chronological order of the story. If we were to draw conclusions upon these 10 individuals and the elements they have included, we could say that the most memorable part of the story of Cinderella is that she is a maid. When we compare this to the story component, setting/character was also included for 9 out of 10 participants. The interdiction function of the story relates to the setting/character because Cinderella being a maid describes the character of Cinderella at the beginning of the story and established the setting of the story. Additionally, the participant who did not include a function of interdiction is the same participant who did not include the setting/character component. Perhaps these two elements connect with one another in terms of storytelling.

 The next two functions that were included among 7 out of 10 participants are the hero being recognized and the wedding. For the purposes of this study, we indicated that the wedding function was used if the participant included the words, “happily ever after.” These two functions are the last two within the story of Cinderella and would be the end or conclusion of the story. If we were comparing Propp’s functions to story grammar components, then the reactions component would be the second most used among the participants. The internal plan was included for 9 out of 10 participants which would be the most used along with the setting/character. The reaction was used after these two components 7 out of 10 times. The reactions include when Cinderella tries on the slipper and the wedding. Again, these match the same functions that Propp lays out.

 If we were to look at the trend line for the story grammar components, we would see that the three most used components were found at the beginning, middle, and end of the story. Students learn story structure and narrative story telling skills at a young age. Narratives can be defined with specific elements including an introduction, setting, episodes, and solution (Duinmeijer, 2012). These plot developments are clearly indicated by the 10 participants within this study. Although the participants may not have included every story element, grouping these individuals together shows main plot points are important and are most commonly remembered. We cannot be sure as to why these participants included some aspects and not others.

**Discussion**

It is noted that not every step described by the participant can be labeled by a function or component. One of the most interesting cases of this within this particular study was participant Thompson13a. This participant had the highest number of completed years of education tied with Scale32a. However, the storyline used does not necessarily follow the story of Cinderella indicating that Propp’s functions and story grammar components could not be identified for most of the steps. In addition to this, this participant in particular used the highest level of vocabulary referencing Cinderella as a “top ranking aristocrat.” This individual is a great example of how fluent aphasia affects cohesion and lexical-semantic skills. This skill focuses on the how morphemes can be meaningful and relate to other morphemes to understand a sentence or concept (Lieber, 2004). Cohesion and aligning the events to one another is very important to note with this particular individual. Although Thompson13a did not include elements of the story of Cinderella such as going to the ball, all of the parts of the story coordinate with one another. Even if this was not the story of Cinderella, the participant still told a story. We cannot assign functions and components to this story properly because we are not sure what story line this participant is following. The beginning, middle, and end as well as character and setting is not clear for the story Thompson13a has told. However, all of the events being told within the story relate to one another. Another point to note with Thompson13a is the high level of education. Since this individual uses higher level of vocabulary, it may be possible that this vocabulary usage is linked to the level of education. Although we cannot draw a conclusion on this, this individual opens new questions that may be researched in the future.

If events within a story can relate to one another, SLPs can use that as motivation to include story functions and components during treatment. Comprising a structure for a client to follow along with as they tell stories may improve narrative story telling skills. Based upon the participants in this study, plot structure (beginning, middle, end) is already implemented consciously because 7 out of 10 of the participants included the setting/character, internal plan, and reaction components. For the purpose of this study, we can conclude that these components are the beginning, middle, and end of the story. First allowing clients to tell a story without assistance from the SLP will show the level of storytelling skills. Then, SLPs can determine how functions and components can be applied to the skills of the client. The application of these functions and components can teach clients techniques for future story telling use. The client can process each story component before a story is being told. The goal of this is to reinforce a PWA’s skills for them to successfully communicate with others.

**Conclusions**

It has been determined that narrative tasks are a useful tool for understanding language disorders and future performance for communication (Duinmeijer, 2012). Language and communication skills can be negatively influenced by the onset of aphasia. SLPs as well as the client’s and their family and friends determine goals to increase communication skills. By providing techniques and tools for narrating a story, clients may be able to improve language.

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