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Understanding the role of silence in conversations with people with aphasia

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Abstract

This thesis demonstrates how silences are used and understood by people with aphasia (PWA) and their communication partners (CPs), highlighting the difference between silence as a reflex of communication difficulties resulting from aphasia, versus its use as a purposive communicative practice.

Aphasia has a significant impact on the production and comprehension of speech, resulting in difficulties with relationships, careers, and mental health. Healthcare guidance encourages allowing extra silences in talk and giving PWA extra time to respond. This implies that silences have no communicative value and result only as an artefact of aphasia. However, prior research has shown that silences have many communicative functions within interaction. To investigate this, eleven hours of video-recorded conversations between nine dyads of PWA and their CPs were analysed using the methodology of Conversation Analysis.

This research found that PWA use silence to convey communicative content in multiple ways: as part of a dispreferred response, signalling difficulty with their turn, as space to produce a display of affect, to invite their CP to talk, and as part of providing a legitimate display of understanding. When silences result from aphasia, PWA can account for silences using turn-holding devices, or mask silences through displays of embodied thinking. PWA's silences are also part of claiming to undertake certain mental processes, such as doing thinking, word selection, and displaying understanding. CPs are receptive to these uses of silence and allow more time if the PWA signals it is required.

These novel findings are positive for PWA, demonstrating that their communicative capabilities can overcome their impacted speech and that they possess more resources than previous research has indicated. The findings also demonstrate that the healthcare guidance requires further development so that it acknowledges the variable impact of aphasia on PWA's use of silences, and the preserved communicative abilities of PWA.

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Chapter 1

Introduction

1.1 Context and Motivation for this Study

The communication disorder of aphasia has a significant impact on the lives of those who experience it, causing a sudden, sometimes extreme loss of communicative ability and resulting in problems with relationships, careers, and mental health (R. Wilkinson, 2014). Over 376,000 people have been diagnosed with aphasia within the UK (NHS, 2018) and, once affected, most people retain symptoms of aphasia for the rest of their lives. Having accurate and reliable healthcare guidance for aiding family members, healthcare providers, and the general public is then essential for supporting people with aphasia (PWA) to be understood and given a voice in all areas of their lives.

Since the publication of research on the communication intervention of Supported Conversation for Adults with Aphasia (SCA), the focus on communicating with PWA has been on "giving the aphasic partner time to respond" (Kagan, 1998b, p. 820). This has developed in such a way that the current healthcare guidance for PWA states to allow PWA "plenty of time" to respond, because "if rushed or pressured to speak, they may become anxious, which can affect their ability to communicate" (NHS, 2018). This idea of providing "plenty of time" is echoed throughout healthcare guidance sources on aphasia (Aphasia Alliance, 2019; Aphasia Institute, n.d.; Aphasia Institute, 2012; Aphasia Institute, 2020; National Aphasia Association, n.d.; NHS, 2018; Stroke Asso-

ciation, 2018).

Such guidance is problematic as it implies that silences that occur during talk involving PWA do not contain any communicative content. This disregards the fact that silences can perform actions in interaction. For example, silences are used to delay a speaker's turn in the formation of a production of a dispreferred response (Schegloff, 2007). Silences are also used communicatively when employed in a performance of surprise (S. Wilkinson and Kitzinger, 2006). Additionally, extended silences are also used to upgrade a display of disagreement (Pietikäinen, 2018). These are just a few of the numerous functions silence can have in everyday conversations. Removing meaning from silence, therefore dismisses any potential for it to be treated as performing the above or any other communicative functions during conversation, functions that may be preserved within PWA.

Within research on aphasia, the analysis of silence is limited and there is an absence of full-scale examinations on how PWA use and understand silences in talk. Wilkinson shows that when instances of silence after a failed self-repair sequence by the PWA are not responded to, it causes the PWA discomfort after a "possibly embarrassing failure" (R. Wilkinson, 2007, p. 551), raising the concern of how much time should be given for processing. Greater than one second of silence is considered problematic within everyday communication (Jefferson, 1989), making it a challenge to be able to give more time. Silence can signify the PWA's refusal to speak (Mann et al., 2015) or a lack of understanding (Penn et al., 2015). Simmons-Mackie and Damico (2008) highlight how PWA can be forcibly silenced by other-initiated repair (Jefferson, 1987; Schegloff, Jefferson, et al., 1977), while Perkins demonstrates that increased silences makes the PWA more vulnerable to the loss of the communicational floor (1995, p. 378), raising concerns over power imbalances.

These findings render the healthcare suggestions to overlook silences problematic, as silence may not be a choice of the PWA, nor a symptom of their impairment, but instead belong to their co-participant. They also demonstrate that reducing silence to one meaning dismisses any potential for it to be viewed communicatively during conversation. To assert that silence is not being used communicatively by PWA denies their ability to use a possibly preserved resource after their linguistic abilities have

already been greatly reduced. Furthermore, encouraging people to leave every silence unfilled may cause PWA to feel coerced into responding or speaking further. As such, it is important to determine how silence is being used during aphasic communication.

Therefore, it is important to determine whether silence is a preserved resource for PWA and ascertain how PWA and their communication partners (CPs) use and understand silences in everyday conversations. Understanding this will help to discern whether the healthcare guidance provides accurate advice when talking with PWA, or whether amendments are required to recognise the presence of communicative functions of silence within aphasic speech.

1.2 Research Aim and Objectives

In response to the limited healthcare guidance on silence in talk with people with aphasia, the aim of this research is to develop an understanding of how people with aphasia and their communication partners use and understand silences within everyday conversations. Video recorded conversations between dyads of PWA and their CPs are investigated in order to ascertain whether silence is a preserved resource for PWA or purely a result of their aphasia. The objectives of this thesis are to:

- Analyse the use and interpretation of video recorded silences within conversations between people with aphasia and their communication partners.
- Investigate the difference, in interactional linguistic terms, between the occurrence of silence as a reflex of communication difficulties resulting from aphasia, versus its use as a purposive communicative practice.
- Demonstrate how understanding this difference could inform, improve and update healthcare guidance, public awareness, and education around aphasia.

Through the aim and objectives above, this project aligns with the top ten research priorities as identified by PWA themselves, through its consideration of the communicative, and hence social, impact of silence and its focus on improving understanding of aphasic communication (Franklin et al., 2018).

These objectives will be achieved through the use of Conversation Analysis (CA), a qualitative, inductive, micro-analytic methodology that uses naturally occurring data (i.e. recordings of everyday conversation) to develop the understanding of the underlying organisation of interaction. It takes a social constructionist view, treating meaning and action as being socially constructed and jointly negotiated through talk.

CA allows for a consideration of the cooperative and mutual adaptation of talk and other resources in the presence of aphasia (Rhys, 2005). As silence is a communicative device, its meaning will be based in the real-world context in which it is produced. By using CA to examine the micro-features of verbal and non-verbal communication within the context of the interaction, we can show whether silences are produced as merely a consequence of processing time, or are being used to impart meaning by participants. Furthermore, using CA will reveal not just whether meaning is being imparted by a silence, but also what that meaning is. These results can then be considered in light of the current healthcare guidance, thereby achieving the aims of the research.

1.3 Significance of this Research

This study develops the current understanding of how people with aphasia use and understand silences within everyday conversation. It details how communication partners understand PWA's silences, whether atypically or neurotypically, and examines whether CP's use of silence differs from that of neurotypical talk.[1] This research also furthers the current understanding of silences, the functions they perform in everyday communication, and how silence may be impacted by the presence of aphasia. It demonstrates that the use of silence is a preserved resource for PWA, and that silences are recognised by PWA as something that should be minimised in talk, with PWA having several methods for accounting for silences that may result from aphasia.

[1]The terms 'atypical' and 'neurotypical' have been selected for use following Wilkinson, Rae, and Rasmussen (2020). These terms are intended to be descriptive terms only that serve to remind us that, within each dyad, one participant has been neurologically impacted by a condition that affects their communication. This means that these participants may not be orienting to the 'rules' or 'principles' that prior research has established as governing neurotypical talk (i.e. talk from people without a diagnosed neurological impairment).

Furthermore, silences are not always required by a person with aphasia and where they do occur, they may possess communicative content.

This work also contributes to the understanding of how interlocutors display that internal mental processes are occurring within conversation. Should a silence occur as part of doing thinking, there are specific vocal and embodied signals used in conjunction with the silence to identify it as such. Finally, this study assists in legitimising the use of discretion when it comes to using silence, opposing the healthcare guidance's more generalised perspective that silences should always be allowed. Instead, it demonstrates that the role of a silence is dependent on the immediate context of the interaction.

1.4 Organisation of the Thesis

Following this introductory chapter which has presented the context of the study, along with its aims and objectives and the significance of the work contained within, there are seven further chapters. Chapter 2 examines literature that precedes this study and identifies what work has been done that relates to the problem under discussion, as well as the gaps in the current literature relating to silence and aphasia. Chapter 3 describes the methods used to undertake this research, detailing the methodology of Conversation Analysis and why it has been selected to help achieve the objectives of this research. It also describes the participants recruited for the study and design of the research, along with the procedures used for data collection and analysis.

Chapters 4, 5, and 6 then present the main analytic work of this thesis. Chapter 4 examines silences that occur in different locations within speech, demonstrating how silences are used and understood in a highly structured way by people with aphasia and their communication partners both within, and between conversational turns-at-talk. It demonstrates how silences are used to hold and create content and action within PWA's talk.

Chapter 5 looks at silences which occur during repair sequences and word searches. It shows that silences in PWA's self-repair mirror those of neurotypical repair, with PWA able to signal through the use of silence and gaze when they require assistance

with a repair or word search. PWA are also shown to use turn-holding devices to account for silences during self-directed word searches and repair sequences. The analysis shows that PWA are treated by CPs as capable of producing self-repair, following the the preference for self-repair in everyday interaction, and that CPs may respond to requests for repair differently, allowing silences as a way to promote talk from the PWA.

Following this Chapter 6 then examines how silences are accounted for by PWA when they appear to occur as part of a purposeful, social representation of a mental process of doing thinking. It analyses silences and the talk and non-talk that surrounds such silences to uncover how PWA claim or display that they are undertaking an internal processes such as doing thinking, word-selection, and understanding.

Chapter 7 then provides a discussion of the results and recommendations of this study, detailing the key findings and significance of the findings within current literature. Finally, Chapter 8 summarises the research and details the implications for interactions with PWA, their CPs and the current healthcare guidance on silence and aphasia. It concludes by reflecting on the limitations of the work undertaken and the future research that may be conducted.

Chapter 2

Background on Silence and Aphasia

This chapter provides a background on how silence occurs and is used within conversation, covering its role within turn-taking, preferred and dispreferred turn structure, and the repair and progressivity of communication. It also discusses aphasia and how it can impact the communicative abilities of people with aphasia (PWA), the healthcare guidance in relation to aphasia and silence, and the current research on silence within aphasic communication. The final section provides further detail on aphasic communication by detailing how interlocutors adapt to the presence of aphasia within interaction. It examines how co-communicators alter their communication within interaction; how gesture, often accompanied by silence, is used as a compensatory strategy; and how repair and progressivity are affected by aphasia and the impact this may have upon silences during communication.

2.1 Silence in Conversation

Section 2.1.1 discusses the role of silence within turn-taking, the varying classifications of silences, and the implications that different types of silences may have on the communication. Section 2.1.2 goes on to examine the prior literature on the role of silence within the preference structures of interaction, including preferred and dispreferred turn structure, and discusses the varying functions silence performs within communication. Finally, Section 2.1.3 discusses how repair can occur within interaction

and the role that silence can have as part of repair. It also examines how repair, and silence, can impede the progressivity of interaction.

2.1.1 Role of Silence in Turn-Taking

Silences occur in a myriad of ways during talk-in-interaction. It is important to understand what functions silence may perform, and in what locations it may occur during talk. As such, this section reports on the prior research that has been undertaken on silence within turn-taking and details how silence has been previously classified, along with what consequences its presence may have on the interaction.

Sacks, Schegloff and Jefferson (1974), hereafter SSJ, classify silences according to their position during turn-taking. A *pause* is an intra-turn silence, a silence within a person's incomplete utterance that is usually not talked in by other speakers. A *gap* is defined as silence which should be minimised and occurs after a speaker's possibly completed utterance at a potential transition relevance place (TRP), but that may not necessarily result in a change of speaker. If it does not result in speaker change, it becomes redefined as a pause. Finally, a *lapse* is defined as an extended silence at a TRP in which no next speaker has been selected and, from the examples they provide, one which may subsequently result in topic change. These different forms of silence are said to be transformable; they can change from one form to another depending on how the interlocutors treat them, or what they do next.

These definitions of silence have been criticised by Heldner and Edlund (2010) who highlight that, according to SSJ's definitions, gaps and lapses could only occur if speaker change also occurred, otherwise the silence would only fit within the category of a pause irrespective of the length of silence. They modify the categorisation of a gap to include those that involve speaker transfer, regardless of whether the silence occurs at a TRP, suggesting that in SSJ's definition, gaps are still intra-speaker silences. Heldner and Edlund (2010) do not differentiate between lapses and gaps. Instead they define pauses simply as intra-speaker silences and gaps/lapses as inter-speaker silences, disregarding the fact that the immediate context can have an impact on how the silence is interpreted by the participants, and instead placing the analyst as the interpreter

of the silence. However, it is unclear whether SSJ require that a lapse be followed by the same speaker commencing another turn construction unit (TCU). Instead, they state that during a lapse, rounds of self-selection occur, suggesting a lapse can be concluded by another speaker resuming the talk. This would not necessitate the lapse being redefined as a pause particularly as it would be unrealistic to define 20 seconds of silence within a conversation as a pause.

Hoey (2015) investigates the organisation of lapses and their relevance to the interaction. Following SSJ, he defines a lapse as a moment when "all participants forego their turn to speak" (Hoey, 2015, p. 430). Hoey observes that there may be other physical actions, such as gestures, occurring during the lapse, either causing the lack of talk, or occurring because of it. Lapses can be the result of the relevant cessation of talk in which a silence develops because talk is unsuitable for the present activity. Hoey provides an example of a counsellor reviewing a student's application form; silence becomes relevant when the counsellor is reading the application, which is necessary for the successful continuation of the action. Interlocutors may allow silence to unfold because other actions which require or prefer silence as part of performing them, such as watching television, are the focus of the interaction. Talk can occur as a comment on what is being watched but silence may be an acceptable response, particularly when watching is the ongoing activity and interlocutors are in a state of incipient talk (Schegloff and Sacks, 1973).

Finally, Hoey (2015) also shows that silence can develop into a lapse in instances where talk should be taking place, leaving a conspicuous absence of communication. He attributes this form of lapse to be potentially due to no next speaker being selected during the prior talk, no speaker self-selecting, and the organisation of the prior sequence not making relevant a next action, or topic for discussion. Where responses are expected within conversation, an absence of response is marked (Schegloff, 1968) and may be treated as a sanctionable occurrence (Stivers, 2013). Hoey (Hoey, 2015) suggests that speakers can deal with this conspicuous absence of communication by disengaging and orienting to actions outside the talk, such as drinking or attending to pets, in order to remove themselves from the potential for next-speaker status. They can also undertake sequence recompletion which defers the choice to talk and leads

to further rounds of speaker self-selection, or all speakers can subsequently orient to a newly established activity. Sequence recompletion can occur through the speaker of a prior turn producing an increment following a silence; additional talk that is syntactically fitted to their prior turn (Couper-Kuhlen, 2012; Schegloff, 2016; G. Walker, 2004). This minimises the developing silence and provides a new TRP at which another speaker can respond. This shows that silences are more complex than merely their location within the talk; it is the immediate context of talk and how participants orient to the silences that should be examined in order to define them.

Much of the literature on silence has focused on inter-speaker silences or the gaps between turns at the TRP, also referred to as a floor transfer offset (FTO) (de Ruiter, Mitterer, et al., 2006). In terms of length, the majority of inter-turn silences have been measured as falling between "-100 and 500 ms, that is between a short stretch of overlap to a gap with a duration equivalent to one to three syllables" (Levinson and Torreira, 2015), showing that turn transition occurs rapidly with minimal silence in-between. As Sacks, Schegloff and Jefferson (1974) determined that the majority of responses occur with no or minimal gap and overlap, which is the preferred form within talk-in-interaction. This suggests that the listener must be able to project an upcoming TRP and the end of the current speaker's utterance, and that listeners must be processing their response while the first speaker is still producing their utterance. Picture naming tests have established that 600 ms is the minimum amount of time required to process and produce a simple, one word response (Indefrey and Levelt, 2004). This can extend to 1200 ms or more (Konopka and Meyer, 2014; Levinson and Torreira, 2015) in more complex constructions before the commencement of articulation, and typical inter-turn gaps for providing simple answers to polar questions have been shown on average to be approximately 200 ms (Stivers, Enfield, et al., 2009).

Early-planning models suggest that due to the "latency of the speech production process" (Magyari et al., 2014, p.2536) and particularly in light of the short FTO of 200 ms, with the shortest of turns averaging two seconds long, speakers must commence production while the other speaker is still talking. This means that speakers are comprehending the current speaker's talk and processing their own response at the same time (Bögels, Kendrick, et al., 2019). As work in various areas of psycholinguistics,

cognitive neurolinguistics, psychology, phonetics, corpus linguistics and conversation analysis has established, listeners are required to comprehend the content or the action of an utterance in progress (Bögels, Casillas, et al., 2018; Bögels, Magyari, et al., 2015; Corps et al., 2019; Garrod and Pickering, 2015; Levinson and Torreira, 2015; Meyer et al., 2018), plan a response while the first speaker's turn is still in progress (Bögels, Casillas, et al., 2018; Konopka and Meyer, 2014; Sjerps and Meyer, 2015), and project the end of a turn (Bögels and Levinson, 2017; Bögels and Torreira, 2015; Magyari et al., 2014; G. Walker, 2018), before commencing articulation of that response.

While it may appear that silence might indicate the end of a speaker's turn, being a clear indication of a TRP, it has been shown that interlocutors do not act on this alone as a cue and in fact begin processing and formulating a response as soon as the action of the first speakers turn is clear. End of turn indicators include prosodic, syntactic and pragmatic cues which allow listeners to project the end of a turn and launch their response approximately 200 ms after the first speaker has completed their turn (de Ruiter, Mitterer, et al., 2006; Heldner and Edlund, 2010; Jefferson, 1986; Local and G. Walker, 2012). Silence only becomes recognisable as silence after 200 ms at which point it can take a further minimum of 200 ms to react (Levinson and Torreira, 2015). Perception of a no gap transition, as defined by SSJ (1974), has been estimated to involve between 150-250 ms of silence (Levinson and Torreira, 2015). If silence within a transition space does not indicate the end of a turn, and is longer than the typical 200 ms articulation gap, then silence may be performing a different function, be a result of processing time, inattention or pre-occupation with another activity.

Gaze can assist with turn transition as it can be sufficient to mobilise or pursue a response from an interlocutor (Rossano, 2006; Rossano, 2013). Goodwin and Goodwin (M. H. Goodwin and C. Goodwin, 1986) also suggest that during word-searches, a speaker's gaze towards their recipient is a way of inviting them into the search to assist, though this is often unsuccessful. Weiß (Weiß, 2018) found that gaze-selected participants do not always take a turn, even when the gaze continues post-turn completion into a silence. In neurotypical communication, gaze direction and mutual, or lack of mutual gaze, depends on the context and social action occurring (Rossano, 2006; Rossano, 2013). Gaze may be directed to a listener when the speaker is providing a

preferred response but averted when producing a dispreferred response, for example (Kendrick and Holler, 2017). Listener gaze is also expected during extended tellings but less so in turn-by-turn talk (Mandelbaum, 2013; Rossano, 2013). More recently, Auer (2021) has shown using eye tracking techniques that gaze is an essential part of turn allocation, particularly in multi-party interaction, and that gaze direction frequently leads to turn-transition. Thus, gaze has been established as a useful tool used for accomplishing social action and turn-taking.

Piai et al. (2015) set up an experimental study testing how response times varied when participants had to withhold a response. They found that responses were on average 208 ms faster if participants had to withhold their response while waiting for a 'go-cue' stimulus, showing that the earlier speakers are able to plan their responses, the faster they are able to articulate their response. This suggests that within conversation, should interlocutors have or choose to withhold a response, for example when the content of a speaker's utterance becomes clear and a response can be formed prior to the speaker finishing their turn, then the response is likely to occur with less silence if it can be planned earlier.

Meyer, Alday, Decuyper and Knudsen (2018) also found this to be true of responses to polar interrogatives; the earlier interlocutors are able to comprehend and predict the action of the current speaker's turn, the sooner they are able to commence planning a response and the shorter the response time, particularly if the required response was simple. Heritage (1984a) determined that in response to being provided with information, a speaker responding with a change of state token often left no inter-turn gap between the end of the prior speaker's turn and their own receipt of the information.

Holler, Kendrick and Levinson (2018) found that faster responses were produced when a gesture accompanied a speaker's question, and earlier responses were provided when the gesture was completed before the question completion. Inter-turn silence timings can also vary according to the interlocutors' speech rate (S. G. Roberts et al., 2015). Within slower paced conversations, longer turn transition times can be present, possibly due to the reduced pressure for gap minimization (Gardner and Mushin, 2015) and because individuals accommodate the gap length of others (ten Bosch et al., 2005).

Reaction times have also been shown to increase with the age of participants, showing that ageing has an effect on processing time (Alatorre-Cruz et al., 2018; Baudouin et al., 2019). These studies demonstrate the variability of the use of silence within neurotypical conversations. Therefore, it is important to determine whether this diversity in the presence of silence is also the case within conversations with people with aphasia.

2.1.2 Role of Silence in Preference Structure

As silence plays a significant part in the production of dispreferred turns, this section details what role silence has been found to perform within preference structure during talk-in-interaction.

During interaction, interlocutors follow implicit preference principles (Pomerantz and Heritage, 2012) that act as rules to aid in the successful structuring of talk. Preference in this sense does not refer to the psychological state of the individuals involved in the interaction, but to the rules of interaction. These rules allow participants to develop a shared understanding rather than being restrictions on the interaction (Bilmes, 1988; Sidnell, 2010a). Silences, or lack thereof, play a powerful role in preference organisation.

Preferred turns are designed to maximise the agreement, alignment, and affiliation between speakers, while dispreferred turns should be designed in ways that minimise the effect of the disagreement and any potential conflict it may cause in order to enable successful social interaction (Atkinson and Heritage, 1984). Affiliation here refers to speakers displaying cooperation and support for the speaker's perspective or affective stance in the prior speaker's talk (Stivers, 2008). Alignment refers to a participant's structural support for the speaker's action-in-progress (Stivers, 2008). Preferred responses typically assist in moving towards the accomplishment of an activity and are designed in such a way so that they progress or achieve the action of the initiating utterance. Preferred and dispreferred responses occur with different forms (Pomerantz and Heritage, 2012). Typically, a preferred reply is formed of a straightforward response that follows the initiating action contiguously without hesitations, fillers or, importantly for this research, silences.

Dispreferred responses are marked with reference to preferred; they are usually

delayed and are designed and performed in such a way as to minimise the lack of alignment and affiliation with the first speaker (Schegloff, 2007). The length of a dispreferred turn is also typically longer than the corresponding preferred version of a response. There are several features of talk that occur in conjunction with dispreferred responses which allow the hearer to assess whether a response is dispreferred. These features do not all have to be present but the more that are, the more work is being done by the respondent to mitigate the impact of their dispreferred response. The features include minimising the dispreferred response through apologies, accounts, partial agreements, and turn-initial delays such as hesitations and silence (Heritage, 1984b).

Jefferson (1989) initially determined that there is a maximum tolerance of approximately one second of both inter- and intra-turn silence within communication, after which participants begin to attempt to resolve the silence due to it being an indication of trouble within the interaction. Jefferson found that longer and shorter silences were still present within talk, but overwhelmingly silence lengths fell between 0.9 and 1.2 seconds. It has been subsequently determined that gaps longer than 300 ms demonstrate that there is a reduced chance of the first speaker receiving an acceptance without any form of a qualification and that there is an increasing chance that a dispreferred turn will be produced. 700 ms or more of silence carries semiotic significance (Kendrick, 2015) and is associated with dispreferred actions (Levinson and Torreira, 2015). Bögels, Kendrick and Levinson suggest that listeners make on-line use of information about silence and dispreferred responses and that they generate "expectations about upcoming responses and the timeliness with which they will be delivered" (Bögels, Kendrick, et al., 2019, p. 13). This means that interlocutors are attuned to the fact that meaning can alter with the length of silence and should a silence begin to stretch for longer than 300 ms, more interactional work must be done by participants to account for the additional gap.

Roberts, Francis and Morgan (2006) conducted three experiments to examine third-party perception of speakers' level of willingness when responding to requests and assessments. Following experimentation to examine third party perception of speakers' willingness to respond to requests and assessments, they found that a greater duration of inter-turn silence following assessments and requests were judged by third-party lis-

teners as the respondent being less willing to comply with the request. They also found that if an inter-turn silence after an assessment or request was longer, the agreement supplied post-silence was interpreted as being weaker.

However, within everyday communication listeners are required to judge their interlocutor's level of willingness very rapidly and based on a variety of factors within the specific context of the interaction which this study does not provide to the third-party listeners. Through isolating silence as the only variable in a second pair part (SPP) of a turn, it is clear that the duration of silence has an impact on third-party perception of willingness.

Therefore, variation in the amount of silence can affect a hearer's perception of the meaning of a turn. This suggests that longer silences within conversations may also potentially signify to the speaker of a first pair part (FPP) that their assessment or request may not be wholly agreeable to the respondent. This is perhaps due to the fact that dispreferred responses of disagreement or rejection are more likely to be produced when longer silences are present within the response. However, there is not enough evidence within Roberts, Francis and Morgan's study to wholly confirm this, particularly as they rely on scripted and manually edited audio data.

The findings in the research discussed above suggest that the silences present in the talk studied are, in effect, communicative silences, particularly as they project to the first speaker that there is an upcoming dispreferred response. Participants are able to process and interpret the significance of the silence, demonstrating that silence can take on functions dependent on the context of the surrounding talk. (Johannesen, 1974). These functions can include rejection in which, rather than speakers understanding silence as showing a lack of understanding, confusion, or mishearing, they can recognise silence as demonstrating an issue with the acceptability of a proposal and can reformulate their initiating action accordingly to receive a preferred response (Davidson, 1985). When speakers offer an assessment of something,[1] the typical preferred response is agreement, usually via a second assessment (Pomerantz, 1984a). In a disagreement, silence can accompany or foreshadow the dispreferred response, which again can take the form of a second assessment but one which opposes the initial assessment. In this

[1]Other than self-deprecating assessments.

case the silence helps to mark the response as a disagreement, regardless of the form of the utterance.

Pietikäinen (2018) goes further to suggest that silence can not only be used to display disagreement, but also sustained disagreement over multiple turns in instances where an impasse has been met. This form of maintained silence can both emphasise the level of disagreement and potentially encourage the first speaker to alter their stance on what has been said. If the first speaker does change their stance they can, instead of conceding, do it in a way that may alter the meaning of the other participant's silence, forcing them to break their silence to "avoid inferences of guilt" (Pietikäinen, 2018, p. 84).

The idea of silence displaying guilt to a recipient has been most prevalently studied in legal contexts, within courtroom discourse and police interviews. Heydon (2011) demonstrated the contradiction between the interactional preference for providing a response and a suspect's right to silence; if a suspect does exercise her/his right to silence, then often that silence is taken as a sign of guilt. However, rather than only displaying guilt, silence can act also as a form of resistance when it is used to refuse to answer a question within police interviews. This is seen as a way to resist or contest the institutional power of the interviewer (Newbury and Johnson, 2006). Silence is also used within couples' arguments by interlocutors to avoid producing a self-incriminating second pair parts (Pietikäinen, 2018). This silence can be responded to by urging the initial speaker to respond, resulting in an eventual response by the recipient, possibly due to the interactional pressure to provide an answer. If an interlocutor produces a silence in response to the FPP of a question-answer sequence without accounting for the silence or providing any attempt at an answer, this challenges the rules of turn-taking and preference structure and presents the speaker as resisting or challenging the communication.

This can then in turn result in the speaker of the FPP having to produce further talk. Nikolić found that when silence occurs mid-turn within interviews via a speaker self-interrupting, the interviewee can be unaware that they are required to take the floor due to the interviewer's lack of turn-completion markers. This silence results in the interviewee speaking to minimise the developing silence, which shows that specifically

placed silences can encourage speech from interlocutors (Nikolić, 2016). This is true for both suspect and victim interviews; when an interviewer does not take a turn after the interviewee has finished speaking, victims have been shown to adhere to turn-taking rules and self-select to continue speaking (Ostermann, 2003). This can be generalised to everyday conversation through turn-taking rules, particularly in dyadic conversations as when a listener does not respond at a speaker's TRP, the current speaker must self-select: otherwise a lapse develops in the conversation. As explored above, should a lapse not be a relevant cessation of talk, the silence becomes marked and speakers must work to minimise it (Hoey, 2015). This demonstrates that silence has a communicative function in talk that interlocutors orient to.

Silence does not only occur as part of a dispreferred response. It can occur as part of an interactionally organized performance of surprise in the form of a delayed surprise token (S. Wilkinson and Kitzinger, 2006). As opposed to the above, where silence is evidence of a lack of alignment with the prior turn, silence as part of a surprise token is viewed as an indication of the participant "doing being surprised" (S. Wilkinson and Kitzinger, 2006, p. 165). In fact, the silence is actually an enhancement of the subsequent surprise token and forms part of a preferred response. Nikolić (2016) reports that inter-turn silences within confrontations express speechlessness, either as surprise at the prior turn or as part of showing an unwillingness to respond.

However, Nikolić argues that this use of silence is not done purposefully which is an interesting conclusion to make, especially considering that Nikolić uses Conversation Analysis, in combination with critical discourse analysis, to examine the data in this study. CA views all features of communication as purposeful, with nothing being unintentionally performed. Nikolić is therefore suggesting that gaps and inter-turn silences may not be purposeful parts of interaction and that surprise is an unintentional reaction by participants. However, this is not the case, as Wilkinson and Kitzinger (2006) show; inter-turn silence is part of the performance of surprise, it can be utilised or withheld to produce different functions within communication, such as upgrading the surprise token, and is interpreted by the recipient as being meaningful and therefore purposeful.

Lerner's (2013) study on hesitating within conversation focuses on mid-turn si-

lences, something which has been substantially less studied within conversation analytic literature. He shows that when a speaker produces an "uh/um", this both "indicates and constitutes a delay" in the progressivity of the speaker's turn, which then makes a pause "additionally relevant" (Lerner, 2013, p. 101). This shows that silences can be signalled as being part of a speaker's turn and even foreshadowed by the prior talk. Lerner discusses that by allowing a silence prior to a delicate term that carries potentially negative consequences or evaluation, the speaker can present a display of unease regarding the term. This demonstrates that silences, when accounted for by other features of talk, can be used to assist in producing social actions and portraying a display of an internal individual experience as a social signal (Ruusuvuori, 2013).

Hofstetter (2020) also demonstrates that silence can be accounted for by the talk that surrounds it and thereby treated as part of a social action rather than as a lapse in talk. Hofstetter shows how, in order to account for silences that occur when a pause in play occurs during table-top board games, speakers use displays of embodied thinking[2] and vocal cues to avoid their silence being misinterpreted and treated as sanctionable. The silence then could be seen as a required part of this performance of 'doing thinking'.

The variety of functions that silence can perform within talk-in-interaction shows that silence is a malleable interactional resource, the meaning of which depends on the surrounding context of talk, which therefore must be examined in order to determine what function silence is performing within the talk-in-interaction (Mendoza-Denton, 1995).

2.1.3 Role of Silence in Repair and Progressivity

Due to aphasia's impact on word-finding abilities, there is a greater frequency in repair during conversations with people with aphasia. Therefore, this section examines the literature on what role silence plays during neurotypical repair, and the impact it may have on the progressivity of the interaction.

There is a preference for maintaining the progressivity of talk-within-interaction (Schegloff, 1979; Stivers and Robinson, 2006) and moving smoothly from one action

[2]Such as gazing at the game board or hovering a game piece over the board

to another without any intervening troubles in order to achieve mutual shared understanding, or intersubjectivity, and successfully complete actions. However, one way in which the progressivity of talk is interrupted is through the necessity for repair on the occasion of a trouble source, which can frequently result in the presence of silence.

Self-initiated self-repair is overwhelmingly the most common and preferred form of repair, usually completed within the same turn as the repairable item or in the transition space following the trouble source. They can be accompanied by cut-offs, sound stretches and markers such as 'uh' which may be followed by silence while the speaker constructs the repair (Schegloff, Jefferson, et al., 1977). Self-repair can also occur in the third-position, following an interlocutor's response to the trouble source turn, and works to resolve issues in intersubjectivity that have been identified through the recipient's response. This form of repair is often marked by "no" or "I mean" to correct the issue with understanding (Kitzinger, 2013; Schegloff, 1992).

During a word search, a form of self-initiated self-repair, speakers may hesitate using tokens such as 'um' and 'er' which indicates to listeners that there will be a delay in the progressivity of the talk, making a silence "additionally relevant" (Lerner, 2013, p. 101) which further delays talk. The repetition of tokens such as 'um' signal to listeners that the speaker is committed to producing further talk, maintaining their claim on the conversational floor and their ownership of the silence.

Word searches may also result not from the speaker's difficulty finding a word, but as a way to substitute a lexical item for a less inappropriate term, or as a way to highlight the term as potentially inappropriate and disaligning, thereby claiming discomfort with what they are saying (Lerner, 2013). In this case a listener can wait for the speaker to complete their turn or offer a candidate completion of the word search during the speaker's silence in order to cooperatively share the interactional burden of the inappropriate term, thus displaying that their own stance is shared with that of the speaker. Other-completion of a word search may occur in cases where the listener recognises what the speaker is searching for. In this instance the listener may offer a candidate completion of the utterance through conditional access to the speaker's turn, provided that their input is designed to resolve the completion of the original speaker's turn (Lerner, 2004).

When a hearer has trouble understanding the content of the prior speaker's turn and self-initiation of repair does not occur, the hearer can initiate a repair themselves. Other-initiation of repair typically occurs in the turn following the repairable, as any further delay in the initiation may create a challenge in identifying and repairing the trouble source (Schegloff, 1992). Other-initiation of repair often commences with a silence of approximately 700 ms (Kendrick and Torreira, 2015), which has been attributed to the repair being withheld in order to provide an additional opportunity for self-repair by the speaker who produced the trouble source, due to the preference for self-repair within interaction (Schegloff, Jefferson, et al., 1977).

However, on this point, Kendrick (2015) suggests another possible explanation for the expanded transition space; a search for late recognition. The inter-turn silence can result from the hearer attempting to resolve the trouble themselves without explicitly exposing the trouble and impeding the progressivity of interaction. Regardless of whether the hearer chooses to overtly address the trouble source or not, the silence that unfolds over the extended transition space signals to the participants that there is trouble present within the communication which should be addressed. If the interaction can continue unimpeded by the trouble, interlocutors can choose to overlook it and continue with the talk.

If the original speaker then does not or is unable to produce a repair, the hearer can produce the repair themselves as an other-repair. This can occur as a candidate repair which the speaker of the trouble source can then accept or reject, or be embedded into the talk of the next speaker in a way that continues the talk without offering the turn back to the speaker of the trouble source. Other-repair can occur when the co-participant is invited to assist in a self-initiation of repair, for example via the speaker gazing at their recipient. Should the interlocutor fail or refuse to provide assistance, the silence can be viewed as attributable to the invited co-participant and the absence of other-repair becomes marked as a noticeable absence (Schegloff, 1968).

A speaker directly producing an other-correction is considered to rare in everyday talk, Kendrick (2015) defines other-corrections as those that include replacements for the trouble source, have an accented syllable and falling final intonation and make relevant a self-correction in the next turn by the speaker of the trouble source. Although

Kendrick's study was based on a small cohort, it was found that when other-corrections do occur, they are often produced occur after a gap similar to responses the minimum recognisable silence of 200-300 ms, which is noticeably earlier than the 700 ms of other-initiations of repair (Kendrick, 2015).

This section has examined the role silence plays within neurotypical communication, demonstrating that, while there is a preference for the minimisation of silence within communication, there are times where silence is necessary and performs a vital function within communication. Therefore, silence plays a vital role in preference organisation, repair and the progressivity of interaction. Further detail on how aphasia impacts repair and silences within repair sequences will be discussed in Section 2.3.3.

2.2 Aphasia and Interaction

This section discusses the impact of aphasia on communication and how varying types of aphasia can impact speakers in different ways. It also discusses the current healthcare guidance in relation to silence and aphasia, and its basis in research. Finally, it looks at prior research on PWA and details how they and their communication partners have been found to use silence within interaction.

2.2.1 Impact of Aphasia

In order to understand how silence may be used by people with aphasia, it is important to first understand what impact aphasia has on speakers' talk, and how this communication disorder may vary so significantly between cases. This section discusses the different types of aphasia that may occur and the effects that it has on everyday talk.

Aphasia is an acquired communication disorder that typically results from brain damage within the left hemisphere. It results most typically from stroke, affecting 21-38% of those who have an acute stroke (Berthier, 2005, p. 164), though it may also result from traumatic brain injury, infection, or dementia, among other causes (Brookshire, 2007). This is due to language being left hemisphere dominant, though in some

instances aphasia can also result from right hemisphere damage (Blumstein and Amso, 2013). Cognitive functions remain intact with aphasia but, depending on the affected location within the brain, aphasia can cause difficulties in language comprehension, the formulation of language, signing, reading, writing or all of the above (Berthier, 2005). According to the Boston classification of aphasia, aphasia can be broadly divided into two types: fluent and non-fluent aphasia, with several sub-classification under these headings which are discussed below (Goodglass et al., 2001).

Fluent Aphasia

In *fluent aphasia*, the areas in the brain responsible for processing meaning are affected which results in most sub-classifications of fluent aphasia displaying empty speech due to word-finding difficulties and impaired recognition of incorrect words. This causes aphasias which have been classified as *anomic aphasia, Wernicke's aphasia, conduction aphasia* and *transcortical sensory aphasia*.

Anomic aphasia is one of the most common and less severe types of aphasia. In anomic aphasia, speech is usually fluent and grammatically correct, with the main symptom being word retrieval issues within speech and writing (Brookshire, 2007). Failure in word retrieval can cause unusual silences, circumlocution, and substitution of non-specific lexical items for missing words. There can also be minor comprehension impairment due to these word retrieval errors. Reading and writing is generally preserved (Potagas et al., 2017).

Wernicke's aphasia is another common form of aphasia, characterised by fluent speech with normal rate and prosody but which is sometimes logorrheic with phonemic and semantic paraphasias, neologisms and jargon laden empty speech, the amount of which varies according to the severity of aphasia (Potagas et al., 2017). The speaker may also be unaware of these errors. The patient experiences impaired reading, writing, repetition and naming due to impairments in short term retention and recall and the level of language comprehension deficit can vary between patients (Brookshire, 2007). Those with severe Wernicke's aphasia are limited to comprehending only a few words in conversation (Brookshire, 2007). There are also frequent word retrieval difficulties

which result in many silences.

Patients with *conduction aphasia* have normal speech rate, intonation and stress patterns with fluent speech, but repetition is significantly impaired and patients can experience word-finding difficulties, issues with polysyllabic words, and produce semantic and phonemic paraphasias which they can recognise but have difficulty correcting. Their repair attempts consist of long strings and are often unsuccessful, with other-repair being required to correct the trouble source. Comprehension of language is mostly retained but there are difficulties with reading, writing and naming (Potagas et al., 2017).

Transcortical sensory aphasia consists of fluent but meaningless speech containing many paraphasias and neologisms which they are unaware of and so do not attempt to self-correct (Potagas et al., 2017). Other than the preserved ability to repeat others, comprehension and all aspects of language are severely impaired.

Non-Fluent Aphasia

Non-fluent aphasias are characterised by potentially preserved comprehension but difficulties in producing language. Typically, in all sub-classifications of non-fluent aphasia, speech is limited, halting and contains grammatical errors and many silences. Sub-classifications of non-fluent aphasia include *Broca's aphasia, global aphasia, transcortical motor aphasia* and *mixed transcortical aphasia*.

The most common type of non-fluent aphasia is *Broca's aphasia*. Broca's aphasia is typified by slow, halting apraxic speech with limited access to vocabulary resulting in mild to severe word-finding difficulties. This also results in words and syllables being produced disjointedly, one or two at a time (Rhys et al., 2013) with very long pauses in between (Brookshire, 2007). It is characterised by agrammatism (telegraphic speech) with prepositions often absent and occasional phonemic paraphasia. Vocabulary access is limited, primarily consisting of nouns and verbs, and phonetic dissolution may be present (Potagas et al., 2017). Comprehension and reading are often preserved but there may be issues with writing, and repetition may also be impacted.

Patients with *global aphasia* experience severe communication deficits in all lan-

guage functions (Brookshire, 2007) and can understand little or no language, including written. They produce very few recognizable words, other than potentially being unable to produce stereotypical utterances. However, they can learn to develop alternative communication methods such as gesture, variation in intonation, and variation in facial expression in order to communicate (Brookshire, 2007).

Transcortical motor aphasia consists of preserved comprehension, repetition and mostly preserved naming, but impaired reading and writing, with some cases exhibiting phonemic paraphasias. (Potagas et al., 2017). Speech output is reduced and there are issues commencing and sustaining their talk, often leading to significant delays before the commencement of speech or remaining quiet while their conversational partner talks, limiting their own speech to a few words (Brookshire, 2007).

Mixed transcortical aphasia consists of symptoms from both motor and sensory transcortical aphasia in which fluency, comprehension, naming, reading, and writing are damaged (Potagas et al., 2017). Repetition is preserved, usually presenting as echolalia and patients do not regularly produce speech of their own accord (Brookshire, 2007).

Although this is the traditional system used to classify types of aphasia, there is considerable variation in the presentation of symptoms of people with aphasia, even within the sub-classification groups. Due to the variation in presentation of symptoms, as demonstrated above, even within the sub-classification groups it is challenging for clinicians to diagnose patients as having a particular classification of aphasia as they may not present with all the symptoms associated with that group and patients do not always demonstrate expected patterns (Kasselimis et al., 2017). This means that applying healthcare guidance to a set of individuals that vary in their presentation and abilities to such an extent is problematic. Thus, an examination of the use of silence in conversations with people who present with varying seventies and types of aphasia is necessary.

It is important to consider the possibility that silences do not just occur as a result of reduced auditory or other processing abilities and may actually have a functional use within communication. PWA suffer from the sudden loss of communication, experiencing problems with their relationships (McGurk and Kneebone, 2013), careers and mental health (Aström et al., 1993) and often lose part of their pre-aphasia social

network. Aphasia can impact family dynamics, decision making, and those with poor social support are at an increased risk of experiencing a second stroke and depression (Hilari and Northcott, 2017). Further removing silence as a communicative device by reducing it to merely processing time may be detrimental to people with aphasia and it must be investigated whether the use of silence as a communicative device is retained in the presence of aphasia.

In all of the types of aphasia discussed above, the loss of communicative ability may result in an increased presence of silence within PWA's talk. This is examined in the next section which reviews the literature that has discussed, however briefly, how aphasia impacts a person's silence within talk.

2.2.2 Healthcare Guidance on Aphasia

The motivation for this study is based within the current healthcare guidance on silences and people with aphasia. This section details what that current healthcare guidance is, its basis within academic research, and the implementation and limitations of that research.

Much of the healthcare guidance for people with aphasia suggests that when talking with a person with aphasia, individuals should allow time for them to take in what is being said and give extra time to respond (Aphasia Alliance, 2019; Aphasia Institute, n.d.; Aphasia Institute, 2012; Aphasia Institute, 2020; National Aphasia Association, n.d.; NHS, 2018; Stroke Association, 2018) because if they are rushed they may feel anxious which can affect their ability to communicate (NHS, 2018). This advice appears to stem from the communication intervention of Supported Conversation for Adults with Aphasia (SCA).

SCA trains PWA and their CPs to communicate in a way that acknowledges and reveals the competence of the PWA. It does this through encouraging dyadic communication and increasing the knowledge and awareness of conversational partners' abilities and limitations (Kagan, 1998b). SCA works to "reduce the psychosocial consequences of aphasia" (Kagan, 1998b, p.817) and reveal the person with aphasia's competence by, among other strategies, "giving the aphasic partner time to respond" (Kagan, 1998b,

p. 820). While this may appear a logical suggestion due to the communicative issues and potential for increased silences that aphasia presents with, it is possible that, if followed, the SCA and healthcare guidance may result in PWA and their communication partners disregarding the various communicative meanings silence can have, such as those discussed above in Section 2.1. By disregarding the potential communicative aspect of silence, this potentially dismisses the meaning and action of both PWA's and their interlocutor's silences within talk-in-interaction.

Assessment in SCA is designed to be undertaken with consideration of the person with aphasia's needs in mind rather than relying on the norms of what is expected from their diagnosed classification of aphasia (Kagan, 1998a). It allows the communication training to be tailored to the competency and symptoms of the person with aphasia, thereby providing a personalised adaptation strategy. There are, however, issues with the design of the SCA intervention. Marshall (1998) points out that the guidance is primarily applicable to those with moderate to severe and chronic aphasia rather than being relevant and applicable to 'milder' forms of aphasia. Kagan suggests "those who benefit most dramatically [. . .] have relatively good comprehension and very limited expressive ability" (Kagan, 1998a, p.859), which implies it will be useful for those people with Broca's and transcortical motor aphasia but of potentially limited applicability to other forms of aphasia and those with mild aphasia. Therefore, giving extra time by allowing silences to prolong in these instances may not necessarily be the correct approach. Furthermore, the needs and preferences of people with aphasia relating to communication support can differ greatly and not all aphasias present with the same symptoms (Johansson et al., 2012).

Kagan (1998a) suggests that the application of SCA relies on the conversational partner knowing in which occasions to use particular techniques and when to adapt them, hinting that giving more time may not always be the appropriate approach and will depend on the context of the interaction. It also suggests that training is required to use these techniques effectively and so generalising to the public via healthcare guidance may not be a feasible option. With training, SCA may be an approach that can be learned; however, for individuals who do not receive training, following this guidance may be a challenging task to achieve within everyday communication, particularly when

greater than one second of silence is considered to be troubling within communication (Jefferson, 1989).

SCA has been adapted as part of a research study with an aim to develop national guidance by Jensen et al. (2015). Hospital staff were trained to use SCA, including the strategy of giving the patient extra time to respond. Although training and application of SCA methods were reported as being successful, some staff, particularly on acute wards, described not having enough time to use the tools and techniques taught to them due to regular interruptions on the ward and short periods of time before patients were transferred. This led to difficulties implementing the tools and techniques produced, showing that even with training, SCA advice can be challenging to follow. As a consequence, giving extra time was a technique used less after training and other adaptive strategies were preferred. This shows then that even with training, it can be challenging and not always appropriate to allow additional silence within talk, and that it is necessary to determine how silences are being used within conversations with people with aphasia.

2.2.3 Aphasia and Silence

There is an absence of full-scale examinations on silence in conversations with people with aphasia, though some studies do consider it briefly during their analysis. This section details what prior research has determined about the presence of silence during conversations with people with aphasia.

Wilkinson (2007) examines how interlocutors manage linguistic incompetence during self-repair sequences by utilising laughter or humorous noticings to mark the failure of a self-repair. He shows that long silences following a failed self-repair can emphasise the sense of linguistic incompetence for PWA. PWA can produce laughter after a failed self-repair sequence, which breaks the long silence developing, marks the failed self-repair, and allows the PWA to display an affective stance towards the "possibly embarrassing failure" (R. Wilkinson, 2007, p. 551). However, co-participants rarely join in with the laughter and instead provide a candidate other-repair to complete the repair sequence.

When PWA use humorous noticings to end the silence instead of laughter, they make laughter relevant by signalling the humour of the error by repeating it or noting it as incongruous to the communicative context. In this case, the conversational partner joins in with the laughter and, although the progress of talk is impeded by the failed self-repair sequence, the impact of the failure is lessened, especially in the absence of an emphasising silence, and the potential for embarrassment reduced as humour becomes a shared activity as a "time-out" from the repair (R. Wilkinson, 2007, p. 562). This shows that different responses to silence can have vastly different impacts on the interlocutors' treatment of a 'failure' in talk, and to the interaction moving forward.

Wilkinson (2007) notes that issues with progressivity often involve delays and silences as part of the PWA's talk, which opportunistic interlocutors can use as an opening to complete the PWA's turn. This response to silence allows the communication partner to take over the talk and the PWA's turn should the communication partner's completion not be what the PWA had projected. Therefore, extended silences for PWA can result in discomfort or a potential for the loss of their turns. As such, there are not always benefits to PWA and their conversation partners, allowing or expecting to be provided additional silence within conversation.

Simmons-Mackie and Damico highlight how PWA can be "silenced" (2008, p. 14) and have their contributions to the talk invalidated by other-repair due to lapses in competence being highlighted during therapy. They found that when a therapist used an exposed correction (Jefferson, 1987), i.e. when they explicitly corrected the PWA, the PWA was silenced either in voice or self-expression by the therapist "fixing" an error with the PWA's formulation in order to fulfil the therapist's planned utterances (N. Simmons-Mackie and Damico, 2008, p. 13). Simmons-Mackie and Damico (2008) suggest that this approach can have a significant negative impact on the PWA's self-esteem and their confidence in their communicative abilities. Embedded corrections were found to be more subtle in their correcting as they did not explicitly highlight the error and instead continued the flow of the interaction by being embedded within the ongoing talk. This form of correction focused instead on the communicative intent of the utterance and allowed for the continuation of the social interaction rather than entering into a repair sequence. Therefore, it did not result in the PWA being silenced but instead

promoted and resulted in further interaction. It is clear that an interlocutor's approach to error and repair can impact upon the development of silences as well as the amount of talk by the PWA.

Simmons-Mackie and Damico (2009) also examine interactional resources therapists use for managing and monitoring PWA's engagement within group therapy sessions. They found that clinicians, by gazing at their patients and directing their body position toward them during a conversational opening, such as silence, can encourage the person with aphasia to enter the discussion. For therapy to be effective, Simmons-Mackie and Damico (2009) propose that PWA must engage within the clinical interaction. The above technique co-occurs with silence to allow the conversational floor to remain available once the PWA has been selected to speak. Though effective, it disregards the fact that the PWA may be choosing to remain disengaged, and therefore silent, for a reason. They may have nothing to contribute to the topic, be in disagreement with what was being said, or may not have been paying attention. So while engagement in group therapy is obviously beneficial, this approach to eliciting talk from a silent individual neglects to consider what meaning their silence may have.

PWA's cognitive abilities of memory and attention have been shown to remain relatively unimpeded by aphasia (R. Wilkinson, 2014) and Perkins (1995) has shown that aphasia does not impair the understanding of conversational norms. PWA are able to produce turns complying with the typical minimal gap and overlap of neurologically healthy speech. She showed that some interlocutors of PWA could be "neutral" (Perkins, 1995, p. 377) to the potential inferences that accompany increased silence length in terms of dispreferred responses, though this was dependent on individual discourse style as others were less tolerant and used increased silence lengths and occurrences to take a turn, raising concerns over potential power imbalances.

Silence has also been shown to accompany, or in fact demonstrate, the PWA's refusal to speak or align with their co-participant (Mann et al., 2015), a communicative technique shown to be used similarly by neurologically healthy individuals (Pietikäinen, 2018). Penn, Frankel and Wilkinson (2015) investigate how PWA's person references can cause issues in understanding for the hearer and show how PWA can receive instances of silences as indications of trouble. Though the silence does not provide an ex-

plicit repair-initiation, the PWA is shown to make an attempt at further elucidating the person reference so that the trouble may resolve. Penn, Frankel and Wilkinson (2015) suggest that due to deficits in the study participant's executive functioning, they may struggle with recognising weaker signals or silence as a stimulus for repair. However, as they demonstrate, the PWA repeats the person reference multiple times, showing recognition that the silence symbolises a lack of understanding. However, attempts to repair by providing more detail about the person being referenced are limited.

These studies raise the concern of how much time additional time should be provided by the conversational partner to allow the PWA chance to process and respond to talk, particularly as greater than one second of silence is considered problematic within everyday communication (Jefferson, 1989), making it a challenge to be able to give more time. The research explored above renders the healthcare suggestions to overlook silences as problematic; silence is a complex interactional tool, the use of which may or may not be a choice of the PWA. While silence can be a symptom of aphasia, it may also be utilised as a communicative device to perform the functions explored above, or be formed by their co-participants own actions or lack of action. Therefore, reducing silence to one meaning of processing time dismisses any potential for it to be viewed communicatively during conversation.

This section has covered the different classifications of aphasia and discussed how aphasia impacts communication. It has also examined the healthcare guidance in relation to silence, the research basis for this advice, and the drawbacks of this advice. It has demonstrated that while there is limited research on how the use of silence is affected by aphasia, the literature that does exist shows that further investigation is required to determine how PWA and their CPs use silence within everyday communication.

2.3 Studies on Aphasia and Interaction

The final section of this chapter examines how people with aphasia and their communication partners adapt to the presence of aphasia in order to achieve successful communication. It then considers one form of adaptation available to people with aphasia, gesture, which regularly co-occurs with silence and how it is implemented

within talk and attended to by participants. Finally it examines how aphasia impacts repair and progressivity within communication, the requirement for mutual adaptation to the co-production of repair if the progressivity of interaction is to be maintained, and considers how silences impact, and may be impacted by, these adaptations. The studies below differ from the prior section as they do not all directly refer to silence but provide detail on how PWA's speech may differ from neurotypical talk. They also demonstrate how PWA and their CPs adapt to aphasia's impact upon talk-in-interaction.

2.3.1 Adaptation in Aphasic Communication

In order to produce social actions and meet interactional demands, PWA must adapt the linguistic resources available to them. Adapting to the healthcare guidance on silence during communication may be a challenging activity, particularly as within neurotypical talk, greater than one second of silence may cause trouble during interaction (Jefferson, 1989). This section examines research on how PWA, and their CPs, adapt to the presence of aphasia within talk and the potential increased presence of silence that aphasia may cause.

Schienberg and Holland (1980) examined the conversation between two patients with Wernicke's aphasia and determined that their turn-taking was unimpaired by the presence of aphasia. However, they found that only 44% of speaker changes were seen as "immediate or overlapped slightly" which are suggested to be a consequence of PWA taking an increased amount of time for processing an utterance (Schienberg and Holland, 1980, p. 108). However, a study by Ferguson (1998) replicated Schienberg and Holland's (1980) work and found instead that 96.3% of speaker change in an aphasic dyad occurred with no gap or overlap, and this rose to 98.9% in conversations between PWA and non-brain damaged participants, which was consistent with Sack's et al.'s (1974) findings on the minimisation of gap and overlap within talk-in-interaction. Ferguson (1998) attributes this to possibly being due to her study examining people with less severe aphasia than Schienberg and Holland's study (1980). The differing results of these two studies show that there can be a large amount of variance in the silences during aphasic talk and that appropriate adaptation to increased silences is

required by participants within aphasic communication.

PWA can adapt their turns-at-talk to account for the interactional limitations that the presence of aphasia enforces on the communication by exploiting the sequential context. Adaptations can include compensatory strategies such as gesture, drawing, circumlocution, prosody, and gaze for example, many of which co-occur with silence. Using adapted forms of communication can lead to greater interactional success for people with aphasia as it allows participants to achieve intersubjectivity and maintain progressivity within interaction through reducing instances of repair and delay for example (R. Wilkinson, 2015). PWA and their communication partners adapt to the aphasia by using idiosyncratic semiotic and linguistic resources to design turns in a way that can be better understood (Barnes, 2013; R. Wilkinson, Lock, et al., 2011).

Adaptation is a mutual process, requiring both the communication partner and the person with aphasia to adapt their communication. It calls for the communication partner to interpret what the PWA is saying and to work with the PWA to come to a shared understanding of the action of the PWA's turn, and, where required, co-produce utterances. However, adaptations may change depending on the context of the interaction. Heeschen and Schegloff (1999) show that their participants with agrammatic aphasia use telegraphic speech in one context, mobilising their communication partner to assist in the production of meaning while in another context, the PWA is able to produce more complex turns, receiving less input from their interlocutor. This demonstrates the impact of aphasia and PWA's talk can vary according to the communicative context.

Mutual adaptation does not have to be a conscious choice made by participants. During therapy, interventions can focus on adapting the communication partners' talk to help them avoid forms that negatively impact the contributions of the PWA. Studies have examined therapy which aimed to reduce the production of limiting polar interrogatives and interruption by communication partners (N. Simmons-Mackie, Kearns, et al., 2005; R. Wilkinson, Bryan, et al., 2010). They showed that the PWA's speech alters regardless of whether they were involved in the therapy, often resulting in them taking longer and an increased number of turns, possibly due to the less restrictive nature of their partners' talk. This demonstrates how adaptation by one conversation partner

can influence the interaction for both. When considered in light of the healthcare guidance on silence and aphasia, this suggests that if neurologically healthy communication partners are encouraged by healthcare guidance to adapt to aphasia by allowing for more silence, then it is likely that the person with aphasia's talk will be impacted by this adaptation. This impact may be positive, leading PWA to produce more turns and completed utterances, or negative, highlighting incompetence, coercing PWA to speak, or causing misinterpretations and a breakdown in intersubjectivity. How the healthcare guidance promotion of adaptation to allowing more silence affects the interaction will depend on the communicational context, which must be investigated.

2.3.2 Gesture as a Compensatory Strategy

One form of adaptation that can occur during instances of extended silence is gesture. Gesture can be a compensatory strategy for PWA when speech becomes difficult, and many gestures occur within silence. Disregarding silence could mean disregarding the communicative content of any gesture produced within silence. This section examines how gestures are used by PWA, their importance for the communication of PWA, and the co-occurrence of gesture with silence.

Gesture has been shown to possess communicative functions within neurotypical and atypical talk, particularly iconic gestures that reflect the semantic content of speech (McNeill, 1992). It has been shown that there is more information present in the gestures of PWA than in neurologically healthy individuals (Pritchard et al., 2015). By examining a PWA with only a three-word vocabulary, Goodwin (2004; 2017) determined that PWA can draw on gesture at strategic points within the sequential process of communication to competently say something meaningful and relevant in concert with co-interlocutors, even without producing accompanying talk alongside the gesture. Wilkinson (2013) analysed gesture with respect to its sequential context and determined that gestures can be a compensatory strategy used in place of spoken language to depict actions and words. However, if these gestures were not attended to by the recipient and instead treated as empty communication, like the healthcare guidance on silence proposes CPs to do, then the meaning, and hence the PWA's contribution

to the conversation may be missed or lost.

Carlomagno et al. (2005) found an increased presence of gesture in PWA's communication compared to that of non-brain damaged participants. This was found both in the co-speech gestures, in which gesture is produced as a complement to speech,[3] and speech-replacing gestures, where gesture occurs during a silence,[4] (de Ruiter, Bangerter, et al., 2012). Speech-replacing gestures can be linked to Hoey's (Hoey, 2015) interpretation of lapses being a relevant cessation of talk; speech may cease and silence commence in order for the production of a gesture to occur. There is some suggestion that PWA make more gestures during word finding difficulties (Lanyon and M. L. Rose, 2009) and that these gestures may facilitate word production through improved lexical access (Feyereisen, 2006; Frick-Horbury and Guttentag, 1998; Krauss et al., 1996; Pyers et al., 1998). This can vary between different kinds of aphasia depending on the linguistic skills preserved. For example people with Wernicke's aphasia used a lower number of meaning-laden gestures than people with Broca's and conduction aphasia, in which there were a high number of meaning laden gestures, but Wernicke's aphasia can produce more metaphoric and beat gestures (Sekine et al., 2013).

van Nispen et al. (2017) examined the use of gestures that portrayed essential information during the absence of speech in the communication of PWA. Following Colletta et al. (2008), they coded gestures that occurred within semi-structured communication as either portraying information that was *similar* to that which was conveyed in speech, *additional* to speech, or *essential*, i.e. the gesture occurred in silence, or the lexical indicator was absent from speech, and the message could only be understood through the gesture. They found that a fifth (on average 22% and up to 92%) of the gestures that PWA produced were essential for understanding the meaning that PWA were trying to portray. The gestures were used communicatively to clarify and occasionally contradict errors during talk, and conveyed information that was either not present within an utterance or information in place of an utterance. However, where possible, the use of speech to communicate was preferred and PWA resolved to only using gesture when faced with difficulties in speech that could not be overcome. Klippi

[3]Also described as the hand-in-hand hypothesis.

[4]Also called the trade-off hypothesis.

(2015) showed how pointing gestures, among many other functions, can be used in conjunction with speech as part of a complex repair sequence to elicit an other-initiation of repair. This demonstrates how gesture can occur during silence to communicate action when speech is unavailable.

PWA can use gesture at specific points in interaction to perform repair during silence, both self-initiated (R. Wilkinson, 2013) and other-initiated (Beckley et al., 2013), which can result in the co-participant verbalising the gesture as an other-repair. However, interpretation of gesture, whether as part of a repair or not, can fail and cause or extend repair sequences, particularly if the gesture is unclear or not attended to sufficiently by the recipient (Beckley et al., 2013). This may result in frustration for the PWA and their interlocutor, particularly when the gesture is repeated and relied upon as the method of repair. As gesture produced by PWA is often idiosyncratic, meaning can be hard to determine and the interlocutor may become jointly responsible for uncovering the meaning of a gesture. This can result in repair work to clarify the communicative content of an utterance (van Nispen et al., 2017).

As these studies show, it is common for gesture to co-occur with silence. This implies that silences can hold communicative content. Therefore, it is important to investigate whether such silences are treated as communicative, and are allowed to prolong beyond the one second silence maximum (Jefferson, 1989), so that PWA can produce content using gesture during the silence.

2.3.3 Aphasia, Repair and Progressivity

This section expands on Sections 2.1.3 by examining research on how aphasia affects repair and progressivity and what impacts this may have on silence within conversation. Repair is a feature of interaction that can be a prolonged and challenging activity for PWA (R. Wilkinson, 2015). Repair impedes the progressivity of the talk and is characterised by multiple silences by both the speakers and the hearers. How participants orient to and deal with repair is of great interest due to the frequency of errors within aphasic conversation and because aphasia can diminish PWA's ability to self-repair due to reduced capacity to retrieve words and comprehend errors (Barnes

and Ferguson, 2015). However, self-repair is not non-existent in the presence of aphasia. Patients with Broca's aphasia typically repeat or attempt repairs when communication is unsuccessful (Brookshire, 2007) and Ferguson (1994) suggests that repair differs substantially across activities.

Ferguson (1998) shows how, in a fluent aphasia dyad, two instances of trouble in the form of lapses were repaired by the introduction of new topics, once through producing an assessment then another through asking a question which made relevant an answer as a response, bypassing the lapse. This shows that silences were recognised by PWA as signifying a trouble source and something to be resolved through repair. Silence is minimised by the enactment of repair, demonstrating the preserved awareness that silences are something to be minimised within communication. The majority of repair in Ferguson's study is same turn self-initiated, self-repair. Instances of other-repair were very scarce, though there was an occasion where self-initiated repair failed and the co-participant was invited to resolve the trouble through self-initiated other-repair (Ferguson, 1998, p. 1011-1022).

Ferguson also calculated the rate of repair in PWA and neurologically healthy participants' talk. Non-brain damaged participants' rate of repair was 0-1.4 per minute while the two aphasic speakers' were 1.6-2.8 and 2.0-4.8 per minute respectively (Ferguson, 1998, p. 1023). This demonstrates the PWA's ability to self-monitor within conversation. Though this was a small study, it shows that the increase in rate of repair can vary greatly even within one individual with aphasia and that the rate is not always necessarily that much more frequent than that of neurologically healthy individuals. This may suggest that the presence of silence within PWA's repairs also may not greatly differ from that of neurotypical speech and is something which should be investigated.

During therapy, PWA are encouraged to use self-repair. However, this can become challenging when PWA's attempts fail and the interlocutor does not assist; the PWA's turn becomes extended and the repair activity the focus of the talk. Laakso (2003) discusses that the self-repair of fluent aphasic speakers may vary with the context of the interaction and that completion of a repair can be challenging and may become a prolonged activity across turns unless conversation partners collaborate with the

PWA to achieve repair. Laakso (2003) also showed how leaving repair to the PWA is a significant interactional burden when examining a clinician that does not assist in a PWA's word search, even when the PWA invites them to provide a candidate repair by both gazing and pointing at her. Laakso suggests, among other motivations, the therapist is intentionally remaining silent to influence the PWA to speak more.

This was in fact the outcome as the PWA continued speaking and attempting repair on their own. Perkins (2003) examined a similar case in which a PWA struggled with turn completion and the interlocutor did not provide assistance. However, in this instance the PWA's eventually reduced their to minimal response production, taking a more passive role in the conversation due to their failures in communicating effectively. A reduction in talk implies an increased amount of silence, illustrating the PWA's gradual disengagement in the interaction due to their interlocutor's lack of assistance.

Oelschlager and Damico (1998) and Laakso (2003) show how PWA use gaze directed towards the hearer to invite co participants into their turn to assist by completing the PWA's utterances that show difficulty and PWA's gaze aversion signalled a task that was still underway. Tuomenoksa, Pajo and Klippi (2016) also briefly note that gaze direction on whether a word search invites co-completion (with the PWA gazing at their CP) or is self-directed (with the PWA gazing away from their CP). Wilkinson (2007) then shows that Goodwin and Goodwin's (1986) finding of speakers using gaze to invite assistance in word-searches is a technique also used by PWA.

Barnes and Ferguson examined three types of responses that "resisted" in cooperatively completing repair: receipting responses, accounting responses, and "other" responses (2015, p. 319). Receipting responses are a minimal response to talk that appear to occur after a long silence that suggests trouble or a problem with the PWA's turn is present.[5] These minimal responses do not highlight any trouble with the PWA's utterance, even if it is present and do not provide support for the action the PWA implemented in their turn, disregarding and almost deleting it. This prevents the PWA executing actions through their talk and can appear as though their interlocutor is not paying attention to the content of their utterance. However, this form of response can also be used to avoid confrontation in instances where the interlocutor would con-

[5]These long silences last over 1.0 seconds in the examples Barnes and Ferguson provide.

test what has been said in the prior utterance, particularly if it is self-contradictory, and can also promote progressivity of interaction if used to disengage from multiple unsuccessful attempts at repair, reducing the number of silences occurring.

Accounting responses do address the trouble caused by prior talk through accounting for why the listener is unable to respond, but do not attempt to resolve it. The also occur after long silences and can assign blame to the PWA for their turn being unclear and failing to enable shared meaning, possibly resulting in disagreement or discomfort and therefore a potential increase in silence. Finally, Barnes and Ferguson (2015) show that providing a non-serious response to a serious utterance by a PWA contains the appearance of repair but puts forward a deliberate misunderstanding of the communication troubles and the actions of the person with aphasia. While non-serious responses can provide the chance for affiliation by producing humour, it can displace the actual completion of a repair and risk making fun of the PWA. These types of responses appear to occur with minimal silence from the CP but, by disregarding the communicative content of the PWA's utterances, they are shown to discourage PWA from producing further talk or extended turns. Therefore, it can be seen that varying the type of response given to PWA's troubled talk can alter the presence of silence from each interlocutor. As both Laakso (2003) and Barnes and Ferguson (2015) suggest, interlocutors should provide assistance with PWA's repairs when invited to do so in order for them to be resolved quickly and efficiently, and thus to reduce the presence of silence within talk.

Barnes shows the complexity of other-initiated repair for PWA, demonstrating that where a turn causes a trouble source, there are often multiple reasons for the error including "lexical and grammatical composition, sequential fittedness, topical continuity, and, on occasion, audibility" (Barnes, 2016, p. 115). This can often result in the PWA attempting to redesign their turn in order to correct it, though this too can be inefficient and result in failure. As such, repair is not a simple matter and resolving it can require multiple turns, further repair attempts and may result in abandoned repair sequences (Barnes and Ferguson, 2015). Barnes (2016) found abandonment of the repair to be a more efficient solution as, while it did not correct the trouble source, it dispensed with prolonged repair sequences and allowed the talk to continue. The

abandonment of a repair sequence may be initiated by the conversational partner taking advantage of the multiple silences built into the PWA's attempts at repair when they are unable to understand the communicative intent of the person with aphasia. Barnes concludes by assessing that the relaxation of the preference for the economy of speech can actually be detrimental when applied to PWA's use of repair, as it inhibits their ability to produce precise and recognisable actions.

This section has discussed how mutual adaptation and cooperation is required within conversation to compensate for the presence of aphasia. Mutual adaptation was shown to allow for greater communicative success between interlocutors. It looked at gesture as one mode of adaptation and the work that is required by both participants to extract meaning from gesture, when performed within silence. Finally, it examined how repair has to be adapted and co-produced when aphasia is present in order to maintain progressivity of talk, and minimise silence. Allowing more time when a person with aphasia is struggling to self-repair can have a negative impact on PWA, particularly when the co-participant has been invited to take part in the repair. In instances such as this, it can be queried who the silences produced during the repair attempts belong to, and whether the silences that inevitably occur during repair sequences are treated atypically by CPs and what impact this has on the communication.

The sections were considered in relation to silence and how participants would, in light of the healthcare guidance, be required to consciously adapt to allowing greater silences within communication while disregarding the previously discussed potential functions that silence can perform within interaction. It also considered what occurs when silences are allowed to extend beyond the standard length and the potential impacts that this can have on the person with aphasia.

2.4 Chapter Summary

This chapter has examined the role of silence within conversation, covering the definitions of different forms of silences, their roles within turn-taking, as part of preferred and dispreferred response, and in repair and the progressivity of talk. This chapter has also considered the myriad of functions that silence can perform within interaction,

showing it has communicative content that is reliant on the contact of the interaction. It has looked at aphasia and how it impacts the speech of the PWA, then discussed the healthcare guidance recommendation in relation to silence and aphasia, going on to discuss research that has examined silences in the communication of PWA. Finally, it has discussed more broadly how PWA and their communication partners adapt to aphasia within interaction, how gesture can be used as a compensatory strategy either in conjunction with speech or performed during silence, discussed how aphasia impacts the ability to repair and maintain progressivity of interaction, and considered how this will impact the production of silence by people with aphasia.

Chapter 3

Methods

This chapter discusses the design of the project, the chosen methodology of the study, and recruitment of participants. It goes on to cover the process of collecting data, then discusses how the collected data was processed, transcribed, and analysed.

3.1 Research Methodology

This section discusses the research aims of the project, provides background on the methodology of Conversation Analysis, and justifies the use of CA to achieve the research aims.

3.1.1 Research Aims

This study aims to develop an understanding of how people with aphasia and their communication partners use and understand silences within everyday conversations. As discussed in Chapter 1, the objectives of the current study are to:

- Analyse the use and interpretation of video recorded silences within conversations between people with aphasia and their communication partners.
- Investigate the difference, in interactional linguistic terms, of the occurrence of silence as a reflex of communication difficulties resulting from aphasia, versus its use as a purposive communicative practice.

- Demonstrate how understanding this difference could inform, improve and update healthcare guidance, public awareness, and education around aphasia.

In order to achieve these aims and objectives, Conversation Analysis has been selected as the methodology for use in this study as it can provide access to the micro-features of verbal and non-verbal communication to allow silences to be understood within the context of real, everyday conversations between PWA and their CPs.

CA relies on close analysis of recordings and their detailed transcripts to see and understand the interaction produced by the participants, their orientation to the conduct as it unfolded and how the meaning, or the action contained within an utterance is understood by how participants reacted to that utterance (Mondada, 2013). This allows the conclusions derived from CA research to be based not on the analysts interpretation of the data, nor the participants own perspectives on what they perceived was meant, but on an objective and replicable method. By using CA to examine video recorded conversations between dyads of PWA and their CPs, it will be possible to ascertain whether silence is a preserved resource for PWA or purely a result of their aphasia. Furthermore, there is a well-documented custom of using CA to investigate how people with aphasia are able to accomplish successful communication in everyday conversations (Damico, M. Oelschlaeger, et al., 1999). The methodology of Conversation Analysis has been explored in further detail in section 3.1.2 below.

3.1.2 Conversation Analysis

Conversation Analysis is a micro-analytic, qualitative methodology concerned with understanding language use in social interaction, or talk-in-interaction (Clift, 2016; Couper-Kuhlen and Selting, 2017; Sacks, 1974). Talk is viewed as being ordered at all points and to the most minute detail through tacit rules and structures to which interlocutors orient (Stivers and Sidnell, 2013). CA aims to uncover these underlying structures via detailed analysis of everyday communication (Hutchby and Wooffitt, 1998).

Participants within talk are understood to collaboratively shape expectations, accomplish actions, and achieve shared meaning or intersubjectivity (Schegloff, 1992). In-

tersubjectivity is attained through the sequential organisation of turn-taking, in which the meaning of an utterance and the action that it performs is indexical (Maynard and Clayman, 1991); its meaning is locally produced through its sequential position within the surrounding context of the talk (ten Have, 2007) and unfolds throughout the interaction (Bilmes, 1988; Schegloff, Jefferson, et al., 1977).

Utterances in conversation are produced in relation or response to a prior utterance, usually with minimal gaps and minimal overlaps (Sacks et al., 1974), allowing participants to display understanding of what is occurring to their co-interlocutors (Heritage, 1984b). This then generates a sequence of actions, with each utterance building on, and conditionally relevant to, the prior utterance. CA works to uncover how actions are performed by examining features such as turn-taking, topic shifts and repair and considers why a specific feature of talk occurred at that point, how it was received or responded to by the recipient, and what that action accomplished such as requesting, inviting, or complaining (Sacks, 1974; Schegloff, 2007). Sequences are built through structures such as adjacency pairs which involve a first pair part and a functionally relevant second pair part that work to accomplish the actions participants set out to achieve (Schegloff, 2007).

In order to study social interaction, CA examines audio and video recordings of interaction. Video has the added benefits of being able to view paralinguistic features of communication such as gaze and gesture. The analysis of the interaction includes the analyst setting out to record naturally occurring everyday talk, or for applied Conversation Analysis, talk within a professional or institutional setting. Transcripts of that talk are then produced which detail various features of talk such as pitch change, intonation, silence length, overlaps and latched speech (Jefferson, 2004), alongside multimodal features of interaction, including gestures, body position, facial expressions and gaze direction (C. Goodwin, 1981; Heritage, 1984b; Mondada, 2018). These transcripts allow the research to be empirically grounded, credible and replicable (Damico, M. Oelschlaeger, et al., 1999; Damico, N. Simmons-Mackie, et al., 1999)

Rather than using interviews or questionnaires to understand what a person meant within conversation or what they "intended", Conversation Analysis relies on close analysis of recordings and their detailed transcripts to see and understand the interaction

produced by the participants, their orientation to the conduct as it unfolded and how the meaning, or the action contained within an utterance is understood by how participants reacted to that utterance (Mondada, 2013). This allows the conclusions derived from CA research to be based not on the analyst's interpretation of the data, nor the participants own perspectives on what they perceived was meant, but on an objective and replicable method.

Contrary to deductive research, the analyst approaches the data without a hypothesis, moving from observation to understanding how the participants successfully accomplish interaction. This requires unmotivated looking (Hoey and Kendrick, 2017) and examination of all aspects of the data, treating nothing as irrelevant or random (Atkinson and Heritage, 1984). Structures are uncovered through careful analysis of multiple cases with the analyst forming a collection to understand how underlying structures are used to create shared meaning and understanding.

Conversation Analysis is also used to examine talk within institutional settings such as during doctor-patient interactions, therapy in atypical populations, during news interviews, as well as in classroom and courtroom discourse with an aim to producing change and improving practices and communication in applied contexts. There is a well-established tradition of using CA to investigate how people with aphasia and neurologically healthy conversation partners (CP), such as family members and speech and language therapists (SLTs), accomplish successful communication within an authentic, real-world setting and to determine how that communication can be improved (Damico, M. Oelschlaeger, et al., 1999).

Participation in conversation along with improved communicative ability is a desired therapeutic outcome of both people with aphasia and their family members (Franklin et al., 2018; Wallace, Worrall, T. Rose, and Le Dorze, 2016; Wallace, Worrall, T. Rose, Le Dorze, et al., 2017) and CA's focus on understanding the rules of social interaction allows for investigations into ways in which communication for people with aphasia can be adapted or improved as well as uncovering the linguistic restrictions that aphasia causes.

3.2 Recruitment of Participants

The following section discusses the recruitment process of this study, the inclusion criteria for the participants, and details the participants who agreed to take part in the research. It also covers the ethical approval that was gained before data collection commenced and the process of obtaining informed consent.

3.2.1 Recruitment Process

Following university ethical approval (Appendix A.1), people with aphasia and their relatives, partners and friends were recruited from the Aphasia Centre run at the Philippa Cottam Communication Clinic, a speech and language therapy clinic not affiliated with the NHS. The researcher provided the Aphasia Centre facilitator with a letter (Appendix A.3) requesting assistance with recruitment alongside an information sheet outlining the project and its research aims (Appendix A.4). This included the following participant inclusion and exclusion criteria.

Inclusion criteria for people with aphasia:

- Aphasia diagnosed by a qualified speech and language therapist.
- Aphasia caused by a stroke, a traumatic brain injury or a brain tumour.
- Having aphasia for 6 months or more.
- Aged 18 or over.
- Suffer no other past or current speech or language difficulties or cognitive defects, in addition to aphasia.
- Native English speakers.

Inclusion criteria for the communication partners:

- Aged 18 or over.
- Suffer no past or current speech and language difficulties or cognitive defects.item

The exclusion criteria for people with aphasia included patients whose aphasia resulted from another neurological disorder (e.g. dementia, infection, epilepsy), patients for

whom English is not a first language, and patients who suffer from uncorrected hearing issues such as an auditory processing disorder. These exclusion criteria were identified due to the increased potential for other disorders being present that affect hearing, comprehension, or the ability to process information in such a way that may result in silences being affected. Sub-classifications of aphasia were not specified due to the healthcare guidance being applicable to all people with aphasia regardless of their classification.

The Aphasia Centre facilitator identified people who were eligible for the study and willing to take part. The researcher then attended Aphasia Centre sessions to meet the identified potential participants and present the project to them (Appendix A.10). Here recruitment letters (Appendices A.6 and A.7) were provided, along with an aphasia-friendly information sheet and a relative/partner information sheet, detailing what involvement in the project would require (Appendices A.9 and A.11) (Herbert et al., 2012). An Expression of Interest (EOI) form (Appendix A.12) and a stamped addressed envelope were also provided so that the EOI form could be returned to the researcher if the participants agreed to take part. Potential participants were encouraged to take time to consider the research and discuss it with friends and/or relatives to make an informed decision about whether to take part.

The clinic facilitator also provided details of people who were not currently attending groups but who may be interested in being involved with the project. For these potential participants, the researcher posted a cover letter from the group facilitator (Appendix A.5) explaining why they were being contacted, the recruitment letter, information sheets and EOI form to them along with a stamped addressed envelope so that they could return the EOI form if they wanted to take part.

3.2.2 Study Participants

Ten dyads of people with aphasia and a communication partner agreed to take part in this study. On receipt of their EOI forms, the researcher contacted them to arrange a meeting to discuss the research and any questions the participants had. The choice of initial meeting location and subsequent recording sessions was determined by

participants to allow them to be comfortable wherever they chose to record. Relevant data can be gathered from any location so the choice of recording location did not impact on the study results (C. Goodwin, 2004). Seven dyads chose to record at home, two chose to record at the University of Sheffield's Department of Human Communication Sciences (HCS) in a room booked by the researcher, and one dyad chose to record in both locations. All but one dyad selected to record during the first meeting, while one dyad (8SM) chose to just discuss the project initially and recorded from the second meeting. Each participant dyad were provided with the aphasia friendly information sheet and consent form (A.13) and a relative-partner information sheet and consent form (A.14) for the CPs which were discussed with the researcher.

The ten people with aphasia who took part, six males and four females, were adults with aphasia resulting from a cerebrovascular accident (CVA) a minimum of one year ago. The participants with aphasia were a mix of people with fluent and non-fluent aphasia (see table 3.2 below). The neurologically healthy conversation partners who agreed to take part, four males and six females, were all family members, partners or close friends of the people with aphasia, all of whom were adults and native English speakers. Table 3.1 displays the pseudonyms of the dyads, their genders and relationships, and the total number of minutes of conversation they recorded in total.

Dyad code	**PWA Pseudonym**	**PWA Gender**	**CP Pseudonym**	**CP Gender**	**Relationship**	**Recording Location**	**Recording Format**	**No. of Sessions**	**Minutes Recorded**
1AY	Antony	M	Yasmin	F	Husband-Wife	Home	Video	3	67:37
2AD	Amanda	F	David	M	Wife-Husband	Mixed	Video	3	60:39
3RA	Richard	M	Alice	F	Husband-Wife	Home	Video	4	74:07
2SF	Simon	M	Fay	F	Husband-Wife	HCS	Video	4	93:25
5DS	Dan	M	Sarah	F	Wife-Husband	Home	Video	3	63:68
06EK	Emma	F	Kate	F	Friend-Friend	Home	Video	3	71:20
7LC	Luke	M	Christopher	M	Father-Son	HCS	Video	3	70:94
8SM	Sophie	F	Mark	M	Wife-Husband	Home	Audio	4	67:17
9JM	James	M	Molly	F	Husband-Wife	Home	Video	3	68:95
10AE	Angelina	F	Edward	M	Mother-Son	Home	Video	3	119:36

Table 3.1: Summary of participants, demographic information, dyad relationships, and recordings.

Following an ethics amendment (Appendix A.2) and consent from the PWA in-

volved in the study (Appendix A.15), the following information was collected about the PWA on the type of aphasia and related conditions from the Phillippa Cottam Communication Clinic files.

PWA Pseudonym	Age	Aphasia description	Time since onset	Apraxia	Dysarthria	Handedness
Antony	58	Expressive with cognitive communication disorder	13Y 3M	N	N	R
Amanda	66	Severe expressive, moderate receptive	5Y 0M	Y	N	R
Richard	74	Word-finding and moderate expressive	14Y 7M	Y	Y	N/A
Simon	81	Severe expressive and moderate receptive aphasia	5Y 11M	Y	N	R
Dan	56	Mild word-finding, slow written comprehension	1Y 4M	Y	N	R
Emma	49	Moderate expressive, non-fluent aphasia	1Y 3M	Y	N	N/A
Luke	79	Severe expressive, moderate receptive	12Y 4M	Y	N	R
Sophie	70	Mild expressive and word-finding difficulties	6Y 2M	N/A	N	R
James	61	Mild receptive and moderate expressive	2Y 10M	Y	N	R
Angelina	78	Moderate receptive and severe expressive	1Y 8M	Y	Y	R

Table 3.2: Summary of abilities of PWA.

Age and time since onset refer to at thr time of study involvement

3.2.3 Ethical Considerations and Consent

This project received ethical approval from the Department of Human Communication Science's Ethics Committee at the University of Sheffield on 25 February 2019 (appendix A.1). Further ethical approval was granted on 23 September 2020 (Appendix link A.2) after an amendment was submitted to request the inclusion of further data on the participants seen in 3.2.

While people with aphasia experience communication difficulties, this does not mean they lack the capacity to provide informed consent. All participants involved in this project had capacity and provided written informed consent in the presence of their communication partner on an aphasia friendly consent form before the first recording session. Communication partners also provided informed written consent. The researcher discussed the consent forms and information sheets with both the PWA and their communication partners to ensure they were fully understood. Participants were reminded at the start of each session that they were free to withdraw from the project or the recording session at any time without any negative consequences. The

risk of potential harm to the participants was minimal due to the non-invasive nature of the study. Participants were informed that they could take a break or stop whenever they wanted to and were shown how to operate the video camera and digital audio recorder.

3.3 Data Collection

This section discusses the set-up of the recording equipment and how the data was gathered. It also details the sections of collected data that were omitted from data analysis, and how the data was be stored, including file naming conventions.

3.3.1 Gathering the Data

The data gathered for this study consists of 11 hours 29 minutes of video data and 67 minutes of audio only data across 23 sessions (12 hours 36 minutes of data were recorded in total). At the start of each session, the researcher set up a video camera (Panasonic, HC-V250) and digital audio recorder (Olympus, DS-40), reminding the participants how to start and stop the recordings. For those that agreed to be both audio and video recorded, both recorders were used in case one failed to record, encountered an error during recording, and in case of any audio loss or other issues on playback. For the dyad that did not consent to being video recorded, only the audio recorder was set up.

The video and audio recorders were arranged as inconspicuously as possible so as not to distract the participants but in a position that did not affect the quality of the recording. The video camera was set up on a tripod and the audio recorder placed on a table within two feet of the participants to ensure high quality recording. Participants were informed that they could move about freely and leave the room if they needed so that they did not feel constrained by the recording equipment. In most instances this did not cause an issue, but in one recording the dyad are occasionally off-screen with limited visibility of their movements due to camera positioning. Audio data from both devices is clear throughout the dataset.

Participants were not given any particular task to do while recording and were asked to have a conversation as they normally might, for example over a cup of tea or when planning their day, in order that the data be naturalistic and so that the researcher did not impact the context of the interaction. Should participants orient to the presence of recording equipment during recording, these occasions can still be studied as part of the context of the ongoing interaction (Mondada, 2013). The researcher left the house or clinic room after commencing the recording in order to avoid influencing the recording in any way and ensure the data collected was of the PWA and CP only.

The same process was used in each data recording session with all participants. Each dyad determined how long they wanted to record for and the researcher returned after the specified amount of time or when telephoned by the participants. Each dyad underwent between two and four sessions of recording over three to eight weeks, in April to August 2019, dates dependent on the participants' availability. Each recording session lasted between 20 minutes and 1 hour and on average 32 minutes.

There were some limitations with the data recorded. In some instances the data gathered is not useable; there are occasions where the participants have telephone calls with a third party who has not given informed consent. These sections have been cut from the study due to lack of the third party's consent. Furthermore, during 04SF's second recording, Fay (CP) reads out the project information sheet to Simon (PWA) rather than having a conversation with him even though the researcher had discussed the information sheet in detail with the dyad as part of obtaining informed consent. These sections, along with any involving the researcher leaving and returning at the beginning and end of recordings, were not analysed.

Some sections of the data were more challenging to transcribe. While the researcher set up the audio device was in-between the participants initially, and video camera so the both participants were in shot with faces and gestures visible, participants were not instructed to remain where they were seated during set-up so as not to restrict the interaction in any way. This led to some participants being off-camera or restricted from view during parts of the recording. This prevented view and transcription of some of the participants gestures and facial expression. Where this absence impedes a full analysis of the talk, this is acknowledged during the written analysis of

the extracts in chapters 4 to 6.

For the participants who chose only to audio-record their interactions, there are limitations in using this data as important multimodal features of communication were not able to be transcribed. It was not possible to determine fully what, if anything, the participants are doing within silences, which was essential for analysis. This data has been left out of the study and only the remaining 11 hours 29 minutes of video data was transcribed and used for analysis. The amount of data gathered has resulted in a dataset with a high number of silences present for analysis due to the frequency of silence usage within communication, even with parts of the data being omitted.

3.3.2 Data Storage, Security, and Confidentiality

As soon as practicable after recording, the data was transferred to the researcher's secure university account to be stored in line with Data Protection legislation. After the transferred data was checked, the original data was securely erased from the recording devices. During consent, participants made informed decisions about how their data was to be used and how long it would be retained. They were also informed, both verbally and in writing, about how their data would be stored, kept secure, used and destroyed.

File Format

The video data was recorded in high definition MP4 format as it is usable by most software and one of two formats the video camera records in. The alternate format offered by the video was AVCHD which is incompatible with many software and so would require conversion before use. Video files that were split at approximately 4GB due to the FAT32 format of the video camera's SD card were recombined into a single file once transferred to the researcher's computer. The audio data was recorded in WMA format as this is the only format offered by the digital audio recorder. The MP4 and WMA formats are usable by most software including that used within this study. For the participants who agreed to be video recorded, audio data in WAV format has been ripped from the video data for use within ELAN, rather than using WMA

audio recording to ensure that the video and audio data will be synchronised. These standardised file types can easily be converted using free software, ensuring long-term usability of the data. The participants involved in this study agreed to their data being kept for a minimum of ten years, with many allowing their recordings to be retained indefinitely for use in future studies.

File Naming Conventions

A consistent naming system has been established for the data files, examples of which are shown below in Table 3.3.2, which is extracted from the researcher's Metadata file.

File Name	Folder Path	Data Type	Participants	Dyad Code	Session No.	Date Collected	Location	Length (mins.)
01AY-01-001-VideoCombined	Hyperlink to folder	Video	Antony, Yasmin	01AY	001	02/04/2019	Home	33.02
02AD-01-002-VideoCombined	Hyperlink to folder	Video	Amanda, David	02AD	002	10/04/2019	HCS	27.31
03RA-01-003-Video	Hyperlink to folder	Video	Richard, Alice	03RA	003	10/04/2019	Home	21.23
04SF-01-004-Video	Hyperlink to folder	Video	Simon, Fay	04SF	004	26/04/2019	HCS	19.56

Table 3.3: Example file names from the researcher's Metadata file.

In this table, 01AY is the dyad code consisting of the participant number and participant pseudonym initials. 01 is the recording session number specific to the participants, so the first recording session of this dyad. 001 is the recording session number of the researcher, in this instance the researcher's first recording session of the project. VideoCombined is the file format, detailing that the video had been recombined from separate video files as discussed above. When videos are pseudonymised, this will change to VidAnon to differentiate between the two files and to avoid overwriting the original data. This file name allows for quick identification of the above features and will allow the files to be sorted by participant, which will be useful in both short- and long-term storage. Excerpts will be named after the file it is taken from then according to their identifying feature such as the topic of discussion, for example 01AB-01-001-HorseShampoo. The Metadata file will be kept to record the

information of each file, a summary of what the participants did or discussed, and the progress made with anonymization and transcription for each recording.

This section has discussed how recorded data was gathered from participants and the researcher's role in the data collection process. It has also covered the amount of data recorded and the issues which have led to some data being discarded. Finally, it discussed how the data was securely stored and organised.

3.4 Data Processing and Analysis

This section details how the recorded data has been edited and what steps have been taken to pseudonymise the data for ethical purposes. It then discusses the transcription of the data, collection building and analysis of the selected extracts.

3.4.1 Editing and Pseudonymisation

Participants were advised that they will be identifiable on the original video/audio recordings and that these will not be shared with anyone except the researcher's supervisors. The original recordings were during the data analysis while pseudonymised versions were produced for use in presentations and data sessions. Participants were informed that the video/audio data collected will be pseudonymised and that, while all possible steps will be taken to remove identifying features such as names and places, it cannot be completely guaranteed that they will not be identified by someone in a way that the researcher would be unable to prevent, for example, who may know them personally. This is because full anonymisation would amend the footage in such a way that would remove features that could be analysed during future data analysis and to support analytic claims during presentations and data sessions.

Where video stills are included to support analytic claims in the researcher's thesis or in publications, a screenshot of the pseudonymised video will be used, as in figure 3.1. All possible steps have been taken to ensure that participants are not identifiable in any disseminated or published materials, including the researcher's PhD thesis and any future work that is done using the data. Video pseudonymisation was completed

by applying filters using Adobe Premier Pro (Adobe Inc., 2021), the result of which appears in figure 3.1. Audio pseudonymisation was completed by exporting the audio to Audacity® (Audacity Team, 2019) and passing it through a filter to lower the pitch of the speakers' voices in order to disguising them. Any instances of identifying features such as names have also been bleeped within Audacity so that they are no longer audible. The audio was then imported back into Adobe Premier Pro and reattached to the pseudonymised video file, overwriting the original audio within the video to create a completely pseudonymised version of the video.

As discussed above, all participants have been given pseudonyms (detailed in table 3.1) to disguise their identities which have been used throughout the project including during transcription, in written work, and in any disseminated materials. Pseudonyms were selected so as to preserve the syllable length and stress pattern of their original names, allow for contractions (e.g. Daniel to Dan), preserve gender, ethnicity, and level of rarity (Antaki, 2017). This has also been done for the names of places such as towns, cities and institutions.

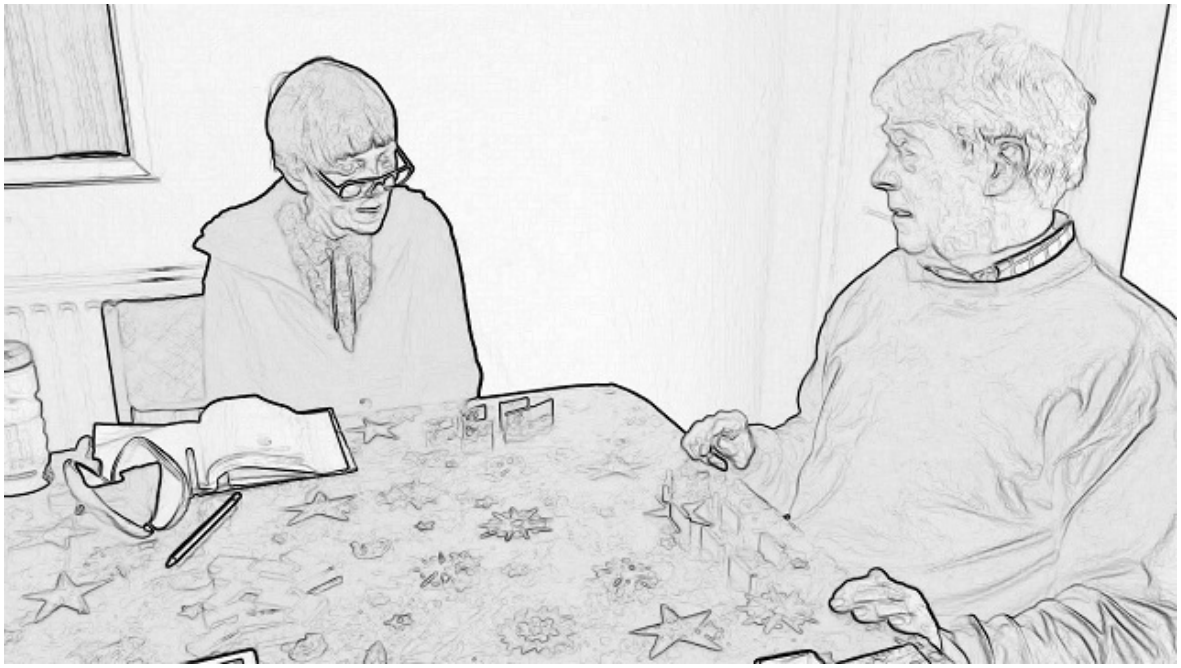

Figure 3.1: Example of pseudonymised video still.

3.4.2 Transcription of the Data

All 23 recordings were transcribed in their entirety by the researcher, using the Jefferson (2004) transcription system (see Appendix B.1). The transcripts detail what was communicated and how it was spoken, along with multimodal features of conversation including; silences, overlapping speech, gesture, gaze, facial expression, and body posture (Hepburn and Bolden, 2013). These have been verbally detailed within the transcript itself and in the written explanation of the transcript in the analysis. For example:

```
1    EMM: .hh err: (0.3) aggit
2 →      (0.8)/((EMM turns to KAT, starts to smile
3 →     while KAT looks at picture with thinking face))
4    KAT: ((turns to EMM)) who=
5    EMM: =huhh:::huh .h er fish
```

In the example above, everything occurring within the 800 ms silence, is detailed in the written account next to the silence on lines 2 and 3, including the gaze direction and facial expression of both participants. While other ways of transcribing gaze and gesture were considered, (e.g. Damico and N. N. Simmons-Mackie, 2002; Mondada, 2016; Rossano, 2013), this method was chosen to simplify the transcripts and to place emphasis on what was occurring during the silence. Figures, such as figure 3.1 above, are included where it was felt they would aid in the understanding of the extract. As part of ensuring the transcriptions produced by the researcher were valid, the researcher presented excerpts of the transcripts and collection extracts at online and in-person data sessions with other CA researchers.

The transcripts were used as a guide to assist analysis, with the video recordings being the primary source for analysis of the data. Increasingly detailed transcription were produced through repeat viewings of the video data allowing for layering additional relevant features of extracts of particular interest being transcribed in more detail via ELAN (Max Planck Institute for Psycholinguistics, 2019). As phonetic analysis was not undertaken on the data for this project, any phonemic paraphasias or neologisms were rendered orthographically rather than using phonetic transcription, as neologisms were not the focus of the analysis and so such a high level of phonetic detail was not required. Turns of interest within the extracts are indicated by arrows,

such as →, alongside the names of the speakers, as shown in the example transcripts above on lines 2 and 3.

Transcription of Silences

Each silence manually was timed within ELAN (Max Planck Institute for Psycholinguistics, 2019) and added into the transcripts. All instances of silence were timed through manual analysis of the audio waveform within ELAN to increase timing accuracy. Although time-consuming, it was the most accurate way of recording the length of the silences within the interaction. The capability to automatically time silences exists within ELAN; however, even after altering the settings of this feature, this was not entirely accurate. This is partially due to the quality of the audio file and the level of background noise, which varies between recordings, but also because in-breaths and exhales are counted as silence, while the researcher chose to transcribe the silences around in-breaths and exhales due to the potential communicative content of these features of interaction.

Within CA transcription conventions, a micro-pause symbol, (.), may be used to indicate a brief natural gap occurring between turns, representative of the 200-300 ms articulation gap that regularly occurs within talk (de Ruiter, Mitterer, et al., 2006; Heldner and Edlund, 2010; Levinson and Torreira, 2015). So as not to dismiss any silences from being analysed, this symbol was not used during transcription. Instead, this gap was timed and so silences listed as (0.1) and (0.2) are regularly seen within the transcript extracts in the chapters below. The possibility that silences this short were merely articulation gaps was highly relevant to this study and was considered within the analysis when examining silences of this length.

Chapter 2 explored the various terminology that has been used to describe silences within prior literature. In this study, silences are primarily referred to either as "silence", or by using terms that reflect the structural position of the silence. This allowed the researcher in order to remain objective about what function that silence may have and assists in illustrating the fact that silences which occur within the same position may have different functions within talk. The terminology used is as follows:

Mid-turn silence: refers to silences that occur within a speaker's TCU before their turn has come to apparent completion, e.g.

```
1 → ANT: =cos uh- when you when you try to:: (0.3) step up
```

Intra-turn silence: a silence between a speaker's apparently complete TCU and their next turn without any intervening talk from the hearer, e.g.

```
1    DAN: she'll be bad this time
2 →       (2.2)
3    DAN: the er (0.1) summer coat I think coming in
```

Inter-turn silence: a silence between two different speakers' turns, e.g.

```
1    DAV: right (0.9) shall we have a game of snakes and ladders
2 →       (0.8)
3    AMA: no
```

Lapse: a longer silence where one or more speakers appears to be no longer engaged in the interaction, e.g.

```
1    RIC:  [uruh:i: heh. ge ri dri]ins sides
2          [((indicating left and right side of neck under jawline))
3    ALI:  [((gaze moves to RIC as he speaks then back to makeup
4         mirror))
5 →       (4.9)/((RIC continues watching ALI then turns to TV))
```

In instances where the silence changes from one type to another, the two forms will be listed where relevant for the analysis to reflect the by the moment construction of the participants' talk. This also helps to clarify any confusion that may arise from using SSJ's (1974) terminology of pause, gap, and lapse.

3.4.3 Collection Building and Extract Selection

Once the transcripts were completed, the researcher began the process of unmotivated looking and began collecting instances of silence that appeared to be doing something, or that had something interesting occurring alongside them (Sacks, 1984). The researcher approached the data without any preconceived notion of what type, form, or duration of silences would be examined, instead looking for patterns that occurred within the occurrences. Initially silences were identified by their structural position within the talk and from then these collections were examined for potential

functional uses using the CA methodology (detailed above in Section 3.1.2). The software Nvivo (2020) was used to build the collections as it offered the organisation and flexibility required for the task of sifting through the thousands of silences present within the transcripts. The transcripts were imported into the software, then the coding function used to identify extracts of interest (see Appendix B.2). This produced the first stage of collections that would be refined through multiple viewings and preliminary observations and analyses to determine what different silences were doing within the talk.

Once this had occurred and the potential collections for full analysis had been narrowed down to 25 collections, these were then exported into word. The preliminary collections were once more refined by developing the transcripts alongside repeated viewings of the video of the extracts, examining each case, including deviant cases that offered further insight into the normative structures of that practice, until the varying aspects of a phenomenon could be identified (Sidnell, 2009; Sidnell, 2010a). This resulted in the 19 collections consisting of 575 examples detailed in Appendix 2 were produced. These collections form the sections of the analysis chapters within this thesis and 57 extracts were selected from these collections to exemplify the phenomena under discussion. The included extracts were selected based on their clarity of their depiction of each phenomenon and based on providing a representative sample from each dyad. Due to time constraints, these collections are not exhaustive; other examples of each phenomena likely occur within the data. However, enough examples of each phenomenon were gathered from each transcript to ensure that the results from the analysis of each phenomenon could be considered to be generalised across the data-set.

3.4.4 Impact of Covid-19

This section briefly addresses the impact of the Covid-19 pandemic on this research. The researcher was fortunate enough to have collected all of the data required for this study prior to the start of the pandemic in 2019. However, the pandemic did still have a detrimental impact on the analysis of the data and during the writing up of the study, which occurred during the lockdown periods within the UK. The pandemic

and various lockdowns impeded normal supervisory practice.[1] It caused disruption to, and a significant reduction in, discussion time with the thesis supervisor, impeding normal supervisory practice and limiting opportunities to share and discuss the data with other academics. There was a long period of isolation from fellow students, academics, friends and family experienced that extended beyond the typical PhD isolation that has been previously documented (see Cantor, 2020; Janta et al., 2014). There was also a lack of access to a suitable workspace and equipment, university libraries, and other campus facilities, which made completion of the project particularly challenging. Furthermore, there were limited prospects of receiving a financially feasible project extension. This statement has been included as an acknowledgment of the impact that the global pandemic has had on this any many others' PhD theses.

Section 3.4 has discussed how the video and audio data has been pseudonymised in order to reduce the likelihood that participants will be recognised in written work and shared data. This section has also detailed how the data was be transcribed by the researcher to show what is communicated during the talk and finally, how collections of extracts were built from the available data.

3.5 Chapter Summary

This chapter has discussed the use of Conversation Analysis as the methodology chosen for achieving the project's research aims of analysing silences and determining how people with aphasia and their conversation partners use and understand silences within everyday talk-in-interaction. It has also described the recruitment process that has been undertaken and how data was collected. It then detailed how the recorded data have been processed and transcribed, and, how extracts were identified for inclusion or exclusion of collections. Finally, the impact of the Covid-19 pandemic on the production of this thesis was briefly acknowledged.

[1]Please note, this is not in any way a complaint of any kind against the thesis supervisor, Dr T. Walker, who has been immensely inspiring and supportive throughout the whole PhD process.

Chapter 4

Silence in Turn Design

This chapter examines how silences are used and understood by people with aphasia and their communication partners within and between turns during conversation. It demonstrates how silence holds and creates content and action within communication rather than being merely thinking or processing time or a space between talk. It also shows that silences are used in a highly structured and organised way.

The chapter is structured so that Section 4.1 discusses the use of silences that occur after a FPP and prior to PWA producing a dispreferred or preferred response. Section 4.2 examines intra-turn silences and shows how PWA may hold or lose their turn during a pause at a non-TRP. Finally, Section 4.3 discusses silences that arise from a delay or absence in CP's responses and examines how PWA treat and respond to such silences.

4.1 Between Speaker Silences

This section examines silences that are traditionally considered to be inter-turn silences or *gaps* (Sacks et al., 1974) during which a change in speaker is projected to occur such as in response to a first-pair part of an adjacency pair. Section 4.1.1 displays how PWA are able to produce a dispreferred response by using silence to delay the initiation of their turn, showing that this communicative function of silence has not been impaired by aphasia. Section 4.1.2 shows that PWA do not always commence

their turn with silence and so are able to produce preferred responses in a typical manner. However, the extracts also show that turn-initial silences are sometimes an inevitable result of aphasia and that this can cause issues with the ongoing maintenance of intersubjectivity and progressivity of interaction.

4.1.1 Dispreferred Responses

The following analyses show that PWA are able to form dispreferred responses using silence and delay as devices to indicate a lack of alignment to the FPP and a forthcoming dispreferred response. This use of silence is a feature that is attended to by CPs. It demonstrates that silence is a preserved and essential resource in the production of a dispreferred turn for PWA, particularly when a person's expressive abilities do not allow for the inclusion of the other typical features of dispreferred turn design, such as circumlocution and the provision of an account (Pomerantz and Heritage, 2012). This use of silence is seen in the majority of the extracts in this collection.

In Extract 1, Dan (PWA) and Sarah (CP) have been discussing the prior pets they have had. Sarah introduces the possibility of a new pet house rabbit with her question on line 1. Dan then produces a dispreferred response to Sarah's question.

(1) 05DS-01-007-HouseRabbit

```
1    SAR: would you have a house rabbit then
2 →       (1.6)
3 → DAN: ((1.2/grimaces))
4    DAN: yeah but that's same things as dogs in't it if we're going
5         away
6         (0.8)
7    SAR: ah looking after it yeah true
```

Dan delays his response on line 2, initially with an extended 1.6 second silence, then grimaces for 1.2 seconds on line 3. Both the silence and the facial expression within the silence project a negative response to Sarah's question without explicitly producing a "no". Dan then produces a "yes, but" construction, "yeah but that's the same things as dogs in't it if we're going away" on line 4. Here, the partial agreement token "yes" softens the disagreement indicated non-verbally through the prior 1.2 second silence and grimace. The disagreement is now indicated verbally through the "but", which

prefaces an account for his implied negative response, through challenging the logistics of having a house rabbit (Antaki and Wetherell, 1999; Pomerantz, 1984b). Following an 800 ms silence, Sarah shows understanding and agreement with Dan's dispreferred response on line 7, "ah looking after it yeah true".

Sarah's question on line 1 has the potential to be a pre-sequence to issuing a request or a suggestion that they get a house rabbit. However, her turn on line 7 displays that she has interpreted Dan's silence and verbal answer as a pre-emptive "no" and she does not follow up this pre-sequence with the unstated request, instead conceding to, and re-aligning herself with, his reasoning. This shows that some PWA are able to produce complex dispreferred responses and that silence is a key part of doing so. The following extract provides further evidence for this.

In Extract 2, Emma (PWA) produces a dispreferred turn in response to Kate's (CP) assessment of a house in a video that Emma recorded while on holiday.

(2) 06EK-01-009-PerfectView

```
1          ((video playing)) (10.4)
2    KAT: god you wunt like to live in that house would'jer
3 →        (0.4)
4    KAT: with that noise
5 →        (1.4)
6    EMM: you would get a perfect view
7    KAT: yeah
```

Kate assesses that the house would not be a good place to live due to the noise of the nearby motorbike racing, "god you wunt like to live in that house would'jer" (line 2). There is a 400 ms silence after this, which Kate follows with the increment "with that noise" (line 4). There is a further 1.4 second silence after which Emma responds with an assessment that counters Kate's, "you would get a perfect view" (line 6). Kate then produces an affiliative agreement with Emma's utterance, "yeah", on line 7.

Kate's initial turn on line 2 is designed to prefer agreement through the second person address, "you" and tag question, "would'jer". Emma, however, expresses an opposing view. Initially, Emma does not respond, resulting in the 400 ms silence, that Kate responds to by incrementing to promote alignment with her assessment by expressing undesirable features of the house location, "that noise" (line 4). Emma still does not respond in the 1.4 seconds after Kate's increment, indicating that Emma's

response will be dispreferred, not aligning with the perspective Kate put forward in her assessment. When produced, Emma's response is not an overt disagreement; there is no negative particle included in her SPP showing she is able to avoid producing an outright "no" statement. Instead, the silence displays that Emma is departing from providing the anticipated agreement and, when combined with the alternative perspective of having a "perfect view" of the race, appears to contest Kate's assessment. This extract again displays that the use of silence as a marker for a dispreferred response is a preserved resource, as well as required in the implicit production of a 'no' response for some PWA.

The following two extracts show how silence alone can be used by PWA to mark an upcoming dispreferred response. In both extracts, The PWA's expressive abilities are more constrained than Emma's and Dan's abilities. In this extract, Chris (CP) asks Luke (PWA) whether he likes "watching twenty twenty" (line 1).

(3) 07LC-02-013-Twenty20

```
1    CHR: you like the- watching twenty twenty
2 →       (1.0)
3    LUK: n:o
4         (0.2)
5    CHR: no
6    LUK: no
7    CHR: not as good
8         (0.2)
9    LUK: no
```

1.0 second of silence follows Chris' query (line 2), then Luke responds with a "n:o" on line 3. Chris repeats this response on line 5, which Luke treats this as a repair initiator as he reconfirms his "no" on line 6. Chris then offers an account as to why Luke has produced a "no"; that Twenty20 cricket is "not as good" (line 7). Luke agrees with this reason on line 9 with a final "no".

Chris' turn on line 1 about Luke liking Twenty20 cricket matches, designed to prefer a "yes" response. Luke's initial "no" is therefore dispreferred. The design of this response has some features of a typical dispreferred; it is initiated with 1.0 second of silence and further delayed through the elongation of "n:o". However, Luke does not provide an account for this response, nor does he mitigate it in any other way. Throughout the transcripts of Luke and Chris' conversations, Luke's speech is limited often to "yes"

or "no" with few attempts at producing more complex utterances. Luke rarely produces his turns with additional features of a dispreferred response, and Chris frequently co-operatively produces or offers candidate interpretations of Luke's speech. Chris does this on line 7 by providing an account for Luke's dispreferred response himself, that the Twenty20 is "not as good" which, this time, receives a preferred agreement from Luke (line 9). This demonstrates that, although the dispreferred response may have to be reconfirmed and accounted for by the CP, the inclusion of silence is one feature of a dispreferred response which is not absent in PWA's speech.

The importance of silence in the construction of a dispreferred response can also be seen in the following extract in which David (CP) suggests to Amanda (PWA) that they play snakes and ladders.

(4) 02AD-02-005-Dominoes

```
1    DAV: right (0.9) shall we have a game of snakes and ladders
2 →       (0.8)
3    AMA: no
4    DAV: no
5         (0.3)
6    AMA: wah dee deeh (0.3) ((points to dominoes)) wah dee dee
7    DAV: dominoes
```

On line 1, David makes the suggestion to "have a game of snakes and ladders". Following 800 ms of silence, Amanda responds with a dispreferred "no", which David reconfirms by repeating "no" (line 4). Amanda then points to the dominoes and David treats this gesture as a suggestion that they instead play dominoes (line 7), which they go on to do.

David forms his proposal on line 1 with interrogative syntax, which allows Amanda to provide an acceptance or rejection. Typically proposals are designed to prefer an acceptance (Heritage, 1984a) though one is not received in this instance. As with Extract 3, Amanda does not reply immediately and 800 ms seconds of silence passes before she responds with an unmitigated "no". Amanda's speech, like Luke's, is limited to a few words including "yes", "no", and "I know" and she is therefore unable to produce the hedging and other mitigating elements typically provided with a dispreferred response. Even when offering an alternative, Amanda is limited to producing a few neologisms and gestures to make her meaning understood. David reconfirms her dispreferred (line

4) as Chris did with Luke in Extract 3. This again demonstrates that PWA can use silences to signal forthcoming dispreferred responses, though may require reconfirmation by the CP, while other features which mitigate the impact to social solidarity are noticeably absent.

The final extract of this section illustrates how silence can be essential for the recognition of a dispreferred response when there is a lack of clarity in the PWA's speech. Chris (CP) has been telling Luke (PWA) about a poker tournament he plans to enter the following weekend.

(5) 07LC-01-012-SixtyPounds

```
 1    CHR: so next weekend i::s (1.8) only sixty pounds buy in next
 2         weekend (0.8) with a hundred thousand pound guaranteed prize
 3         pool (1.2) it'll probably be about (4.6) f::fifty to twenny
 4         thousand for first place
 5 →       (1.0)
 6    CHR: for sixty pounds buy in
 7 →       (1.0)
 8    CHR  that's pretty good innit
 9 →       (1.1)
10    LUK: ((raising eyebrows)) bot ehye:u gon win (0.1) [mneh.
11    CHR:                                               [mwh]at=£oh::
12         y's- a yhe's gonna say w'll you're not gonna win it
13         ehhehh[ahhah
14    LUK:       [hahaha
```

Chris' telling on lines 1 to 8 repeatedly emphasise the stakes of the tournament and anticipates a response that mirrors his own stance (Jefferson, 1978; Sacks, 1974; Stivers, 2008). Although it is possibly complete at line 4, Chris produces further talk following a 1.0 second silence, with a turn that re-completes his telling, "for sixty pounds buy in" (line 6), clarifying the information he has provided. This is met with a further 1.0 second silence on line 9 after which Chris again resumes talking, this time offering an assessment of his telling, "that's pretty good innit" on line 8. There is a final 1.1 second silence before Luke raises his eyebrows and responds with an unclear turn, "bot ehye:u gon win (0.1) mneh." (line 10). Luke response to this, initially with a repair initiator "what", before issuing a change of stale token "oh" and offering a candidate interpretation of Luke's turn on lines 11 to 13, "yhe's gonna say w'll you're not gonna win it". This appears to be confirmed by Luke an acceptable formulation of his turn when Luke laughs and the conversation resumes.

There are three possible TRPs in Chris' initial turn turn (lines 5, 7, and 9) where Luke could express alignment and affiliation with Chris' story, but these opportunities are not taken. Chris assessment of his story on line 8, makes his own stance more overt and further highlights the expected response of agreement with his assessment. It also includes a tag question, "innit", which pursues a response. However, the structuring of Luke's turn shows he is not providing the preferred response. The repeated 1.0 second silences and delayed response set up Luke's turn as a dispreferred response, thus suggesting the action of disagreement. Luke's eyebrow raise (line 10) suggests his turn contains possibly controversial content, and the "bot" at the start of his turn may be heard as a "but", which typically introduces an alternative perspective. His "mneh" could also be understood as a "nah/no".

Even though it is not clear precisely what Luke says, Chris' response on lines 11 to 13 demonstrate that he is treating Luke's reply as not aligning or showing affiliation with his story, and therefore as a dispreferred response. Luke has foreshadowed this through the inclusion of silence before commencing his turn and his delay in responding to Chris' initial reveal. Therefore, this extract provides further evidence that silence is not only an essential aspect of forming a dispreferred response, but a preserved and useful resource for those with severe expressive aphasia whose resources in designing a typical dispreferred may be limited.

In the next section we turn to the analysis of PWA's suppression of silence in the design and production of preferred responses.

4.1.2 Preferred Responses

This section shows that PWA are able to accurately anticipate a potential TRP and produce a preferred response in a neurotypical manner, without inter-turn silence or delay being present. However, as aphasia does impact the ability to understand or produce talk, some extracts in the collection, and provided below, demonstrate that silence does occur at the start of a PWA's turn. The analysis shows that where silences do occur, they can be accounted for by the CP with reference to the person's aphasia and disregarded. Alternatively, such silences may also halt the progression of the talk

by the CP treating the silence as indicative of a forthcoming dispreferred response, requiring the resulting misunderstanding to be repaired.

In Extract 6, Luke (PWA) and Chris (CP) are discussing a former colleague of Luke's. Chris produces an assessment of Luke's colleague, describing him as being a "slimeball" on line 1.

(6) 07LC-01-012-Slimeball

```
1    CHR: he was a slimeball him wa[sn't he (0.1) bloody hell]
2 →  LUK:                          [yes (0.4) he's g]one
```

Luke responds to Chris' assessment with an agreement, "yes" in overlap with Chris' turn (line 2). Luke's turn is formed with the typical structure of a preferred response; no silence or other turn-initial delay, and the agreement produced in overlap with a projected TCU. Although Luke's agreement is not verbally upgraded, the timing of his response on line 2 along with the slight increase in volume displays his emphatic agreement with Chris' assessment. This demonstrates that Luke does not always commence his turns with silence as he did when producing dispreferreds in Extracts 3 and 5 in Section 4.1.1. It shows that he is able to anticipate an upcoming possible TRP and time his turn to fit so as to minimise silence and produce an appropriately formed, preferred response respecting the normative expectation set up by the prior turn.

In contrast to Extract 6, an interesting demonstration of a PWA producing a preferred response in conjunction with silence occurs in Extract 7. Here, Edward (CP) tells his mother Angelica (PWA) about the cost of a friend's family trip to Disney. This extract shows that silence is not merely an inevitable attribute for all of PWA's responses, but may form part of an embodied response such as a display of surprise as is shown below.

(7) 10AE-01-18-MagicKingdom

```
1    EDW: .h and so we want a week at least a week in one of the magic
2         kingdom hotels:
3         (0.4)
4    ANG: (0.5)/((nods))
5         (0.4)
6    EDW: six grand
7 →       (0.3)
8    EDW:  [for the four of them (0.1) [for one week
```

```
 9 → ANG:  [tch. ((jaw drops))          [((0.8/jaw remains dropped))]
10   ANG:  [°oh°/((shakes head))
11   EDW:  [heh::]:hehehehh .h °°bloody hell°°
```

Edward reveals the price of the trip in stages across lines 1 to 6, using silence to foreground the reveal. These stages serve to clarify any potential ambiguity in his story and displays his stance of disbelief. After the reveal of the trip's price on line 6, Angelica responds in overlap with Edward's first increment on line 8 and within 300 ms of his prior utterance, providing a tut and a gesture of her jaw dropping to express the preferred response of surprise anticipated at such news. A silence before a show of surprise is an acceptable feature in typical conversation used to upgrade the expression of surprise so its presence here is unmarked (S. Wilkinson and Kitzinger, 2006). When Edward continues with an additional increment after "one week" (line 8), which places repeated emphasis on the extremity of the cost, Angelica retains the surprised facial expression through the next available TRP then shakes her head and produces a quiet "oh", receipting Edward's telling.

While it may be that Angelica is initially unable to produce a verbal preferred response due to her severe expressive aphasia, she may also be simply choosing not to provide one, with her facial gesture acting as an acceptable substitute for a verbal response. Angelica's embodied responses are timed to be produced where a preferred response would be anticipated and Edward, who has seen her embodied facial gestures does not mark her lack of verbal response, with his laughter closing the storytelling, suggesting that Angelica's response is an appropriate one. This shows that, regardless of whether all of the content of the PWA's turn is available, or chosen to be produced, timing a response to occur within the appropriate preferred window is still a manageable activity for PWA.

Extract 8, also from Angelica and Edward, illustrates the significance of the presence of silence in determining whether a PWA is producing a preferred or dispreferred response. It emphasises the structural and communicative significance of including or excluding silence in a SPP and shows how, when silence does occur at the start of a PWA's turn, it can be recognised as being a result of aphasia. In the extract, Edward (CP) and Angelica (PWA) have previously discussed Edward making a peach-upside down cake for dessert and Edward suggests he should start preparing the peaches (line

1).

(8) 10AE-01-018-Peaches

```
1    EDW: shall I prepare the pe::aches ((funny voice))
2 →  ANG: hehhuh .h (0.3) no
3    EDW: heh:heh:heh:heh:heh:h[eh
4    ANG:                      [ye]s
5    EDW: okay=
6    ANG: =yes
7    EDW: all right no problem (0.8) shuhheh (0.5) you and your yes and
8         nos .h rr::: huhuhhehhehhehhehheh
```

Edward designs his question on line 1 to prefer a "yes" response. Angelica chuckles in response to his silly voice then after an in-breath and 300 ms of silence she produces a "no". This 300 ms is on the border of indicating a dispreferred response and can indicate a reduced likelihood that a preferred response will be produced (Kendrick and Torreira, 2015). Following her "no" she produces an expression of surprise, leaning back slightly, moving her head from side to side and appearing to take an in-breath, possibly indicating continuation. Edward treats her apparent dispreferred response as humorous (line 3), attributing it to Angelica's occasional confusion of "yes" and "no" due to aphasia and thereby accounting for the apparent incorrect production of a disagreement (line 8).

Edward's treatment of the response as humorous suggests that he is not regarding Angelica's reply as a dispreferred. This may be a result of Angelica structuring the reply as a preferred; her laughter demonstrates alignment with Edward's speech and her minimal use of silence does not extend past the normative 300 ms for a dispreferred response. There is also a lack of turn initial delaying features or hedging. Therefore, aside from the "no", Angelica's turn on line 2 appears to be in alignment with Edward's actions. She subsequently works to repair this error in the next turn space by providing a "yes", overlapping Edward's laughter, then a further latched "yes" which reinforces Edward's interpretation that her disagreement was incorrectly produced due to her aphasia. The use of overlap and latching further displays her ability to respond without silence and reinforces her repair of the mistakenly produced "no". As such, the presence or absence of silence can assist in identifying for the CP whether a PWA is aligning with the prior action.

Across the dataset there are extracts where silence inevitably occurs as part of a PWA's preferred response and Extract 9 shows how a preferred response is negotiated by the participants when silence is included and misinterpreted within the SPP. Chris (CP) has been asking Luke (PWA) about the mussels he likes to eat at a restaurant and questions him about the sauce.

(9) 07LC-02-013-MusselSauce

```
1    CHR:  so- ih- (0.3) d'you like the sauce that comes with them
2 →       (0.3)
3 → LUK:  ((0.4/moves palm forward while gazing at Chris))
4 → LUK:  ((0.4/gazes to distance))
5    CHR:  o[r    just    it's    j]ust like yeah
6    LUK:   [((nodding)) oh yeah oh] (0.3) yeah
```

Chris asks a closed polar interrogative, "d'you like the sauce that comes with them" (line 1), which projects a "yes" or "no" response. Luke does not reply for 1.2 seconds. 300 ms into this silence, Luke moves a palm towards Chris while gazing at him (line 3), then gazes to the distance without responding (line 4). Chris uses the silence to reverse the polarity of his original FPP on line 5, "of just it's just like yeah". This suggests Chris is treating Luke's silence and gestures as projecting an upcoming dispreferred response.[1] However, Luke responds in overlap with Chris' reversal nodding and saying "oh yeah oh (0.3) yeah", providing a preferred response that answers the initial framing of Luke's query on line 1.

Chris' rephrasing on line 5 suggests that Luke's silence has been misinterpreted, and that the silence may have been produced involuntarily rather than as a designed part of Luke's turn. This indicates then that CPs do still monitor for silences as they would when communicating with non-brain damaged participants, interpreting silences after a FPP as an indication of an upcoming dispreferred response, not as an artefact of aphasia. Therefore, promoting the inclusion of additional silences where they may not be expected to occur could result in issues with intersubjectivity.

This section has shown that PWA do not always commence their turns with silence. They can anticipate a TRP and time their turn so that there is no inter-turn silence. These responses may be non-verbal but will still be within the preferred

[1]Had Luke been producing a dispreferred response, Chris' reversal would have allowed Luke to provide a preferred confirming answer (Pomerantz and Heritage, 2012).

response window of 300 ms. In instances where silence is present, the silence may be attributed to being a result of aphasia and the preferred turn still recognised, or they can be misinterpreted by their CP as a production of a dispreferred turn which requires further interactional work to resolve. Therefore, encouraging dyads to apply the healthcare guidance in situations such as these would be beneficial, though not always necessary.

Section 4.1.1 and 4.1.2 have shown the importance of silence within preference structure and that PWA do not always require additional time to communicate. The next section (4.2) analyses silences that occur in a different location in PWA's talk: during intra-turn silences and shows how they can be treated by PWA and their CPs.

4.2 Silences Within a Turn Construction Unit

This section analyses PWA's intra-turn silences.[2] Section 4.2.1 discusses intra-turn silences in which the PWA has not reached a TRP and more content is projected. It shows how PWA signal that a silence belongs to them and is built into their turn, and how they commit to the continuation of that turn. Section 4.2.2 then discusses PWA's intra-turn silences that occur just prior to the CP taking over the PWA's turn at a non-TRP. Frequently in such extracts the PWA demonstrates trouble with their turn production. The silence provides an opportunity for the CP to take a turn which assists the PWA to completion or continuation, rather than interrupting or changing the topic.

4.2.1 Turn-Holding

This section demonstrates the techniques that PWA use to maintain their hold on the conversational floor across a mid-turn silence. It shows how PWA are able to signal that a silence is forthcoming and display their orientation to that silence as one which is relevant and allowable as part of their turn. The turn-holding features shown also demonstrate the PWA's commitment to further production of talk and completion

[2]Referred to primarily as pauses by Sacks et al., 1974.

of the turn after the silence. These features occur regularly throughout the extracts in the turn-holding collection.

Extract 10 shows how PWA can make use of numerous turn-holding features to hold their turn over mid-turn silences within their talk, so much so that they are able to set up and perform a story-telling without the CP treating any of their silences as potential TRPs. In Extract 10, both participants are looking at photographs and videos on Emma's (PWA) phone of her holiday watching the TT motorbike racing. Emma commences a story about a crash she witnessed.

(10) 06EK-02-019-OneMinute

```
 1 → EMM:  last da:y (0.6) pt. .h: er: [(1.0)] one minuteh,
 2   EMM:                              [((points to phone then holds
 3        finger up))
 4 →       (1.0)
 5 → EMM:  I seen erm tch. (0.6) er:(0.4) a l-road hopened,
 6 →       [(1.3)]
 7   EMM:  [((holds palm at right angle mid-air))
 8 → EMM:  .h all er [(0.5)] er TTs, .h er mountain,
 9   EMM:            [((pointing to phone))
10 →       [(0.8)
11   EMM:  [((finger raised horizontally in midair))
12   EMM:  one way. [(0.4)] uh traffic.
13   EMM:           [((finger raised horizontally in midair))
14   KAT:  mmh
15 →       [(0.8)
16   EMM:  [((holds finger up again))
17 → EMM:  one minute h.: you- I was here [(0.6)] er watching,
18   EMM:                                 [((points forward))
19 →       [(0.7)
20   EMM:  [((raises [hand))
21 → EMM:                  [er: first car (0.3) come
22 →       [(1.4)]
23   EMM:  [((points right to left))
24   EMM:  then bike then a: <camper> van ((1.2/slaps hand together))
25   KAT:  no wa:y
```

Emma's story commences on line 1, explaining that on her last day at the racing, a road on the mountain route at the TT motorbike racing re-opened for one way traffic and this resulted in a crash between a car, a bike and a camper van. Emma's story concludes on line 24, showing that she has held her turn for an extended period while she tells her story, even through multiple silences which could provide an opportunity space for Kate to take a turn.

Emma uses various techniques to hold her turn through the silences and possible

TRPs. Her "one minute" (line 1) sets up her talk as a compound turn, signalling that her turn is syntactically incomplete until the "then" component has been produced to complete the conditional clause (Lerner, 1991). Kate taking an extended turn would be an inapposite move at this point, and the absence of a turn from Kate shows that she is treating Emma's set up as the commencement of a story-telling. However, this syntactic arrangement does not guarantee that Emma will be able to retain the floor throughout the rest of her intra-turn silences, so Emma can be seen to use additional turn-holding features and accounts for the silences.

Emma employs audible in-breaths which foreshadow extended talk on lines 1, 8, and 17 and filled pauses such as the particle "er" on lines 1, 5 and 8 (Schegloff, 1996). These signal her commitment to producing further talk and make a forthcoming silence additionally relevant (Lerner, 2013). Emma also uses non-final/level intonation prior to the pauses on lines 1, 5, 8 and 17, which again signal the incompleteness of her turn. Furthermore, Emma uses a significant amount of gestures while telling her story which pause mid-air within the silence and signal continuation through their incompleteness (lines 3, 7, 9, 11, 13, 16, 18 and 23). Finally, Emma's gaze remains towards the distance throughout the majority of her story, returning to Kate at the end of line 12 which allows space for only a continuer from Kate to present a display of understanding.

The second time her gaze returns to Kate is at the end of line 24 in which Emma produces the climax of her story. Following this, Kate provides a reaction of disbelief, "no way". Both of these instances use gaze to allow space for Kate to speak. Throughout the rest of the story, Emma does not bring her gaze to Kate, which avoids any invitations for speaker transition until Emma has completed her storytelling. Therefore, through a combination of gaze, lexical, vocal, gestural and intonational features, Emma is able to retain her turn throughout her story, regardless of the numerous silences present during it. Many of these features also account for, or mask the presence of the silences and promote the progressivity of the interaction.

Extract 11 further demonstrates how the syntactic construction of a turn can assist with turn-holding through a silence. Antony (PWA) is explaining to Yasmin (CP) how stepping up their front step into the house is painful for his bad back (lines 1 to 7).

(11) 01AY-02-011-StepUp

```
1 → ANT: =cos uh- when you when you try to:: (0.3) step up
2 →      (0.3)/((ANT holds his hand mid-air and gazes to YAS))
3    YAS: yeah ((nods))
4         (0.3)
5 → ANT: that's when it's erm
6         (0.9)/((ANT gazes to distance))
7    ANT: eugh ((mimes holding his back))
8    YAS  oh it's when you're going up not down
```

Antony explains that when he tries to step up stairs, it causes his back pain. Antony's turn on 1 is framed as a compound turn and he pauses before it is complete for 300 ms, holding his hand mid-air while gazing towards Yasmin (line 2). Yasmin responds to this mid-turn pause, gaze and gesture by providing a continuer, "yeah" and a nod that displays her understanding (line 3). After this, Antony resumes his clause. "that's when it's erm" then pauses again for 900 ms while gazing away from Yasmin on line 6. He concludes by producing the noise "eugh" and mimes holding his back as though a gesture of pain (line 7). Yasmin then takes a full turn, providing a display of understanding on line 8, "oh it's when you're going up not down".

Antony, by framing his turn on line 1 as a compound turn using the conditional clause initiator "when" (Lerner, 1991), signals that his turn is incomplete until the "then" part of the clause has been produced. This turn-holding device is also seen in Extract 10 where Emma also uses a compound turn to signal more forthcoming talk. Yasmin, unless providing a candidate "then" completion, is not in a position to produce a TCU until Antony's compound turn has been completed. However, the break in the compound clause at line 2 and Antony's shift of gaze to Yasmin also allows a conditional entry to turn, which allows Yasmin to produce a continuer displaying understanding of the "when" part of the construction. This enables participants to ensure intersubjectivity is being achieved (C. Goodwin, 1981).

Similarly to Emma in Extract 10, Antony also uses a gesture paused mid-silence on line 2, which assists limiting the turn space to being a conditional entry to turn for the provision of display of understanding. Yasmin then supplies this continuer on line 3 along with a nod displaying alignment and affiliation, but produces nothing further, thereby respecting the structure of Antony's compound clause. This allows Antony to hold his turn over the silences and complete the compound construction.

Antony starts to complete the construction on line 5 but breaks off with a filled pause "erm", following which there is a 900 ms silence. The "erm" possibly indicates the commencement of a word search. This 900 ms silence may again be a location at which Yasmin could take a turn by offering a candidate completion of Antony's search. Directing his gaze away from Yasmin during this silence, displays that this is not transition space and that Antony's search is self-directed, thus again holding his turn over the silence.

Therefore, this extract demonstrates that PWA can use projected grammatical constructions to hold their turn while also securing a display of understanding from their CP. However, as the production of a compound turn is a more linguistically complex feat, this option may not be available to all people with aphasia. This extract again shows that the use of gaze and filled pauses are tools available to PWA which allow them to hold their turn across silences.

Extract 12 shows how PWA with minimal expressive abilities are still able to make use of turn-holding features to prevent the loss of their turn over a silence. In Extract 12, Fay (CP) asks Simon (PWA) whether he has made any more cushions while she was at work during the day. Simon's expressive abilities are more impaired than Emma's, with his speech often limited to a few numbers, "yes", "no" and some neologisms. However, he uses similar features to Emma to hold his turn during intra-turn silences.

(12) 04SF-01-004-Cushions

```
 1    FAY:  did you do any more of the cushions
 2          (0.9)/((SIM writing))
 3    SIM:  [s-cushions ((puts pencil down and picks up tablet))
 4          [((nods))
 5          (0.2)
 6    FAY:  mmh hmm
 7    SIM:  cushions so:va (0.4) cushions
 8 →        (4.7)/((opens tablet cover and picks up tablet pen))
 9    SIM:  ooh cushions
10 →        (5.9)/((typing on tablet))
11    SIM:  .h ker weh weh v ah buh buh (1.0) uh ooh uye (0.8) .h er bai
12
13 →        (2.6)/((on tablet, tongue in articulatory position))
14    SIM:  a::nd
15 →        (3.0)/((on tablet))
16    SIM:  a:::nd
17          (1.2)
18    SIM:  [ehh:::heh heh heh heh heh heh]:: hahah hah
```

```
19          [((turns to Fay who has been watching tablet))
20    FAY:  [oh that's you (0.3) yeah that's you on the bike
```

Following Fay's question about the cushions (line 1), there is a silence while Simon finishes writing, followed by a repeat of "cushions" and a nod (lines 2 to 4). Fay's responding confirmation "mmh hmm" on line 6 treats Simon's repeat as a repair initiation instead of an answer to her question. Simon then again repeats "cushions" twice as he opens his tablet and begins typing (lines 9 to 15). During this use of his tablet, Simon produces neologistic jargon (line 12), as is symptomatic of his aphasia, and repeats the conjunction "and" (lines 14 and 16), until he laughs and finds what he was looking for on his tablet: a picture of himself on a bike (lines 18 and 19). Fay responds by verbalising what is in the picture on line 20.

During this extract Simon's gestures display that he is occupied with some action on his tablet, and his turn on line 8 and repeat of "cushions" on line 9 suggests that he is still in the process of responding to Fay's question by using his tablet to assist him with responding instead of replying verbally. It takes some time for him to find the picture on the tablet to show Fay, and so Simon has to hold the turn during this time and display a commitment to producing a SPP response to Fay's question.

Throughout the extract, his gestures, gaze and focus are oriented towards his tablet, visibly displaying an ongoing embodied action. This orientation to the tablet through the lapses on lines 8, 10, 13 and 15 present the silences as the relevant cessation of talk, with verbal communication being unsuitable for the action of "searching" that Simon is performing on his tablet (Hoey, 2015). Simon also uses facial gestures which indicates further upcoming talk such as on line 13 where he holds his tongue in an articulatory position throughout the silence. Furthermore, during much of the extract his lips are rounded which again displays forthcoming speech (figure 4.1). He also repeats "cushions" multiple times (lines 7 and 9) which displays that he is remaining on topic and is committed to answering the question.

Simon also speaks using neologisms while searching on the tablet, which again hold his turn without adding any semantic content and so are possibly acting as a display of doing verbal "thinking" (discussed further in Chapter 6). Finally, towards the end of the extract when he has almost found the relevant photograph, he twice uses

Figure 4.1: Video still of Simon rounding his lips

an prolonged conjunction "and" (lines 14 and 16) which both breaks up the silences in the surrounding lines and projects further talk, or in this case, further information relayed through the tablet.

Fay does not take a turn during these silences, which displays her treatment of the features discussed above as Simon's commitment to producing a response instead of the silences as possible TRPs. These silences belong to Simon as intra-turn pauses until his turn is complete once he has found the relevant photo on his tablet, which is what Fay reacts to on line 20. This shows that even with limited expressive abilities, PWA can use vocal and gestural turn-holding features to display a forthcoming silence as relevant for their turn-at-talk, rather than as a possible TRP. Therefore, PWA can signal when silence is a necessary and relevant part of their speech.

4.2.2 Speaker Transition During a Mid-Turn Silence

This section presents extracts in which a CP begins speaking during a PWA's mid-turn silence, before the PWA has brought their turn to possible completion. It shows how, rather than being interrupted and losing control of the conversational floor, the CP produces a turn which helps the PWA move past the part of the turn that they are having trouble completing. This is done through the CP either offering a candidate

completion, or an alternative course of action. In contrast with the section above, turn-holding features are fewer or absent across the PWA's silences in this section.

Extract 13 demonstrates CP's treatment of a PWA's silence as one which shows difficulty. In Extract 13 David (CP) is asking about Amanda's (PWA) Zumba class and which of her friends attended that day. Amanda is limited in the words she can fluently produce, often drawing and using gestures to augment her speech.

(13) 02AD-02-005-Emily

```
1    DAV: what about Emily
2 →  AMA: (0.8) er eh eh (1.6)/((repeatedly mouths eh)) °eh°
3    DAV: she got some fr- re- [friends coming
4    AMA:                      [yeah yeah yeah yeah
```

When David asks "what about Emily" on line 1, Amanda struggles to respond to David's open question. Her turn on line 2 commences with 800 ms of silence, then she repeatedly produces a filled pause while looking down, signalling the occurrence of a word search. During the 1.6 second silence on line 2, Amanda repeatedly moves her jaw up and down as though trying to produce a response while the rest of her body is immobile. She then follows this with a quieter "eh". These filled pauses display Amanda's attempts to providing a response, but the lack of progression also highlights that she is struggling to produce one. During this, David gazes at Amanda without any indication of commencing speech at this point, showing his treatment of Amanda's turn as in progress. After the silence and quiet "eh", David offers a candidate answer to his question, "she got some fr- re- friends coming" (line 3) which Amanda rapidly confirms in overlap, "yeah yeah yeah yeah" anticipating David's turn on line 4.

This demonstrates that Amanda is able to produce turns without silence and that her display of being stuck, including the frozen posture and repeated jaw movements, has been treated by David as a signal that Amanda may not be able to complete her turn. David's turn provides assistance by offering a candidate response to his query about Emily. Amanda can then accept or reject this as a suitable completion of her own turn, which she does on line 4. This mid-turn pause transition occurs cooperatively: Davids candidate response is provided in a way that allows the progressivity of the interaction to resume after Amanda's difficulty on line 2, while also returning the turn to Amanda by selecting her as next speaker.

Extract 14 again shows how a PWA's demonstration of difficulty around an mid-turn silence promotes an offer of support from the CP. In the Extract 14, Edward (CP) and Angelica (PWA) have just commenced recording. Edward issues an imperative telling Angelica to talk.

(14) 10AE-02-023-TalkToMe

```
1    EDW: right (2.5) ta:lk talk to me then mum
2         (2.9)
3 →  ANG: es: (1.7) yes (0.8) the:=
4    EDW: =or would you rather do some singing
5         (1.0)
6    ANG: eh (1.1) ((singing)) oh no::: no the marvelous
```

Following Edwards imperative "talk to me then mum", there is a 2.9 second silence. Angelica starts to commence a response with "es:", then restarts with "yes" after a further 1.7 second silence (line 3). This is again followed by 800 ms of silence and a further attempt at a turn "the:" as Edward offers an alternate course of action via an interrogative, that they "do some singing" (line 4). A further 1.0 second silence follows after which Angelica commences singing on line 6, displaying alignment with Edwards second suggestion.

As discussed in Extract 25, Angelica has difficulty producing talk. This issue is demonstrated through Angelica's long silences on lines 2 and 3, in which compliance with Edward's imperative about talking is noticeably absent. Her repaired agreement token and delayed commencement of her turn on lin 3 also display her difficulty with producing further talk. Despite these silences, she displays affiliation with Edward's request through her agreement tokens, "es:" and "yes". However, when she attempts a new clause at the end of line 3, she only manages to produce a determiner, "the" before Edward presents an alternative to talking: singing. This suggests that despite Angelica's attempts to produce a turn as directed, the silences within her turn have been treated by Edward as signalling trouble.

When Edward offers an alternative action on line 4, this implies that he has treated Angelica's silence and non-compliance with his imperative on line 1 as a potential forthcoming disagreement with his proposed course of action rather than her inability to perform that course of action. By offering an alternative action, singing,

that Angelica finds easier to do.[3], this protects Angelica's social image as it presents her as a competent communicator using silence to perform a disagreement rather than the silences signalling that she is having difficulty communicating. Furthermore, Edward's turn on line 4 promotes the progressivity of the interaction which further helps to mask the communicative inadequacy of the PWA's turn.

Extract 15 shows that this need for assistance becomes even more explicit when the PWA appears to abandon their turn during a silence. In Extract 15 Alice (CP) and Rick (PWA) are watching the television programme *A Place in the Sun.*

(15) 03RA-01-003-Pebbles

```
1    ALI: they look like peanuts don't they
2         (0.6)
3    RIC: eh like [°mph-°
4 →                [(0.6)/((makes slight clenching movement with hand))
5 →       (0.3)/((RIC puts hand down and starts to turn to ALI))
6    ALI: pebbles
7         (0.2)
8    RIC: °mmh° ((turns back to TV))
```

Alice assesses something that is on the television as looking "like peanuts" (line 1). Rick begins to respond with his own assessment on line 3, "eh like °mph-°", but is unable to produce the object of his phase as demonstrated by his cut-off and his iconic gesture attempt to represent the word he is searching for (lines 4 and 5, shown in figure 4.2). This gesture is mostly produced in silence and is complete prior to the end of the silence on line 4. Rick's gaze then begins to return to Alice in the last 300 ms (line 5). These features suggest that Rick has abandoned trying to produce the term or is unable to complete it. Alice then immediately produces a candidate object of "pebbles" on line 6 which Rick appears to accept as a suitable end to his turn as shown by his "°mmh°" (line 8) and resumption of watching TV.

During his turn, Rick has displayed no turn-holding features, in fact appearing to give up on his turn as he closes the gesture and turns to Alice which invites her to participate in his failed word search. Rather than losing his turn, Rick has relinquished it during a mid-turn pause. Had Alice allowed the silence to prolong here, Rick's turn

[3]Throughout the recordings of Edward's and Angelica's conversations, Angelica often sings near-fluently without errors and the two regularly sing along to YouTube videos as an alternative to conversing, which Angelica has more trouble with.

Figure 4.2: Video still of pebbles gesture

may have either gone unfinished, highlighting his communicative incompetence at this point, or Rick would have had to undertake further interactional work to minimise the silence and resume the progressivity of the interaction. The extracts in this section demonstrate that, sometimes talk from a communication partner during a PWA's mid-turn silence can instead be an opportunity for the CP to offer support to the PWA rather than hijacking the turn. The form of cooperative completion examined in this section will be explored further in the following chapter in the context of repair, but here it is important to note that allowing a silence to prolong does not necessarily assist a PWA in completing their turn. Instead it can impede the progressivity of the interaction and highlight the PWA's inability to complete their turn.

Sections 4.2.1 and 4.2.2 have shown how PWA are able actively work to maintain their hold on the conversational floor across a pause and how their CPs may assist the PWA when the PWA does not use turn-holding features to claim silences in their turn.Though there are fewer examples within the collection of speaker transition during a pause than there are within the turn-holding collection (45 compared to 15), this shows how efficient such turn-holding devices are for PWA when they need to produce further talk. In the next section, the issue of silence in relation to the progressivity of interaction will be addressed and PWA's resources for promoting a response from their CP examined.

4.3 Silence and Progressivity

Silence can impede the progressivity of the interaction, signal trouble or issues with intersubjectivity, or a lack of alignment between participants. This section covers how PWA respond to silences that appear to belong to their CPs. Section, 4.3.1, presents extracts in which PWA do not receive a response to their turn and instead a silence, or lapse, develops. PWA's modification and pursuit of a prior TCU is then examined in Section 4.3.2, PWA are shown to treat silences belonging to their CPs silence as displaying trouble with their prior turn. In response, PWA can claim the silence as their own by producing further talk and thus a second TRP in which their CP can respond. Section 4.3.3 then examines how PWA treat silences as indicators of a CP's potential forthcoming dispreferred response. PWA are shown to modify their original turn in such a way as to promote a alignment and affiliation from their interlocutors.

4.3.1 No Response

Section 4.1 presents extracts in which PWA appear to produce a first pair part of an adjacency pair, or at least a turn requiring a response from their CP, but receive no response and a lapse subsequently develops. Typically, an account for the lack of response may be provided, the speaker of the FPP could pursue a reply, or sanction the lack of response. However, these features are absent in the extracts within this collection.

In Extract 16, Amanda (PWA) and David (CP) are playing a Speech and Language Therapy (SLT) game in which they have to match a word to the pictures laid out on the table once it has been mimed (seen in figure 4.3), but are missing some of the picture cards.

(16) 02AD-02-005-Cards

```
1    DAV: yeah: (0.5) there's one missing (2.2) ((picks another card))
2         ah here's a good one (1.4) think this one's there
3         (0.7)
4    AMA:  [vruhh↑
5          [((points ↓to↑))]
6 →       (2.2)
```

```
 7    AMA: bah dee (0.4) [↓vruhh:↑
 8                        [((points ↓to↑))
 9 →       (4.3)/((DAV looks for his card))
10    DAV: well that's
11         (0.6)
12    AMA: I know I know
13    DAV: (2.1)/((shows AMA his card))
14    AMA: ide (1.9) yeah ((taps corresponding picture))
```

David is checking his card is present on the table before commencing his mime (line 2 and 3). While he is looking for the card, Amanda starts to mime and verbalise the picture of a zip out of turn as a guess at David's card, using the noise "vruhh" and pointing down to up as though zipping something (lines 4 and 5). This FPP guess does not receive any feedback from David who is still engaged in searching during the 2.2 second silence on line 6. Amanda pursues a response with an attention seeking "bah dee" and then repeats the mime on lines 7 and 8. This again fails to receive a response as David, is visibly searching for the right picture to act out at this point by examining each of the cards on the table (lines 9 and 10). Amanda responds to this by saying "I know I know", and David shows Amanda his card on line 13. Amanda now attempts to say the word on the card he has shown her, "ide", and displays the previously absent alignment with David's actions by tapping on the picture that corresponds to David's card (line 14).

Figure 4.3: Video still of card game setup

It is likely that David and Amanda are each treating the 2.2 second silence on

line 6 differently. Amanda's pursuit attributes the silence as being due to David's lack of response to her guess: an absent second pair part. David's lack of account and visible embodied searching treats each of the silences as relevant for his action of searching, with Amanda's turn being out of place and not requiring a response. David is undertaking activity occupied withdrawal from the conversation (C. Goodwin, 1981). This may account for his lack of response to Amanda's guess and the absence of action ascription to Amanda's turn, even in light of her attempts at pursuit. David is treating the gap in the talk is permissible as the shared orientation should be to following the turn-taking rules of the game.

Therefore, like actions, silence can be understood differently by each speaker and the final negotiated meaning of the silence becomes that which is relevant to the rest of the sequence. Amanda initially treats the silence as David's non-response, and attempts to pursue a response through repetition of her turn. This meaning is relinquished as the sequence progresses when neither interlocutor pursues this meaning as one which is relevant to the conversation. Instead, it is David's interpretation of the silence as a relevant lapse which becomes the final meaning going forward.

Extract 4.3.1 again shows how PWA's turns may not be responded to by the CP, resulting in the action of the PWA's turn being lost due to a lack of action ascription. In this extract Rick (PWA) is watching Alice (CP) apply foundation while the TV is on in the background (line 1). He offers a comment that appears to be about Alice's makeup but receives no response.

(17) 03RA-02-006-Makeup

```
1          (36.5)/((RIC observing ALI putting on makeup))
2    RIC:   [uruh:i: heh. ge ri dri]ins sides
3           [((indicating left and right side of neck under jawline))
4    ALI:   [((gaze moves to RIC as he speaks then back to makeup
5          mirror))
6 →         (4.9)/((RIC continues watching ALI then turns to TV))
```

Rick's verbal expression of his turn on line 2 is unclear as it is filled with neologistic jargon which is symptomatic of his aphasia. His gaze towards Alice and gesture indicating his neck (line 3) are the only indications that Rick's turn is about the makeup Alice is using. Rick is possibly indicating to Alice to apply foundation on her neck, which

is within Alice's epistemic domain: she is the one who is putting makeup on. Yet his turn does not mobilise a response from Alice. Alice briefly looks up from the makeup mirror on her lap towards Rick while he speaks and points to his jaw, but then returns her gaze to the mirror without responding (line 5). Rick continues gazing at Alice for the next 4.9 seconds after he has completed his turn (line 6), suggesting a response is due from Alice. This is an extended period for an inter-turn silence in conversation (Jefferson, 1989). However, Alice does not ascribe any action to Rick's turn, she does not verbally respond nor place makeup where he gestures. Her gaze briefly flits to him before returning to her task. Like David above, Alice appears to be treating the silence differently. Alice treats the silence as appropriate for her action of putting on makeup and watching TV, with Rick's turn not requiring a response.

In this example the CP is again otherwise occupied with another action, though in contrast to Extract 16, the PWA's turn appears to relate to what is being done this time. As Rick eventually turns back to the TV Without receiving a response, this shows he is unable to pursue a response with the resources he has available. The silence then becomes prolonged into a lapse because the CP has not ascribed action to the PWA's turn and the PWA is unable to do anything to amend this. Thus, this shows that CPs can have greater control over the silences and the trajectory of the conversation in a way that is not always to the PWA's benefit, as the PWA is not always able to do anything about the silence that is developing. Persistent gaze is not enough to mobilise a response from the CP. As such, for PWA whose communicative capabilities are more limited, resolving a silence resulting from a CP's lack of response can be more challenging.

Throughout the transcripts, Angelica is one participant who presents with especially limited expressive capabilities. When faced with a silence resulting from non-response from her CP, her lack of pursuit and absence of her marking her CP's lack of response appear to be a result of her aphasia. In Extract 18, Edward (CP) is trying to find some sugar for Angelica's (PWA) coffee.

(18) 10AE-01-018-Sugar

```
1    ANG: djuh get sommin
2         (0.8)
```

```
3    EDW: come again
4    ANG: ((pointing to sugar)) suzeh get suheh
5 →       (6.9)/((EDW opening sugar))
6    ANG: ((bobs head)) mh
7 →       (2.1)
8    EDW: this is granulated (1.9) dunno how it's gonna be
```

Angelica's initial turn, "djuh get sommin" has some features of an interrogative. It appears to have the syntactic form of a question, commencing with "did", followed by what appears to be the second person pronoun "you", then the verb "get", with the object of the utterance unclear, possibly the sugar Edward is holding. This interrogative format implies that a SPP is made relevant by Angelica's turn, anticipating an answer from Edward. Edward responds after 800 ms with "come again", an other-initiation of repair (line 3), showing that Angelica's turn on line 1 is not understood by Edward. Angelica responds on line 4 by apparently pointing to the sugar in Edward's hand and saying "suzeh get suheh", a possible repair of her turn on line 1. Edward does not respond and instead, a 6.9 second lapse follows in which Edward's attention is focused on opening the sugar rather than orienting to Angelica's talk (line 5). Angelica then bobs her head, says "mh" and after a further silence of 2.1 seconds, Edward then produces an utterance about the sugar (line 8), though whether this is in response to Angelica's turn is unclear.

The 6.9 second lapse after Angelica's apparent repair suggests that Angelica's turn is still unclear. This is implied by Edward's lack of response and subsequent silence. Edward has not ascribed an action to Angelica's turn, and he has not acknowledged her repair attempt in any way. Angelica's gaze remains on Edward as he opens the sugar, which suggests that she is waiting for a response during this silence, treating the silence as belonging to Edward. Edward does not reply and Angelica is limited in how she can respond to this extending silence due to her impaired communicative abilities. On line 6 she bobs her head and produces the particle "mh", which interrupts the silence and possibly closes her question. However, the meaning of this turn, like many of her others is unclear. This is possibly why there is an absence of action ascription from Edward. The difficulty evident in Angelica's initial turn and in her repair here suggest that she is unable to produce anything further or more clearly, such as pursuing a response or marking the non-occurrence of Edward's response. She cannot account for the lapse,

or pursue a response due to aphasia.

The silence resumes for a further 2.1 seconds until Edward makes a statement, not in response to Angelica but on the type of sugar he has found. Although this may be related to Angelica's question, it does not respond to it directly which disregards Angelica's talk and it is possible that it is not even directed at Angelica as it is said quietly as though self-talk. Angelica cannot pursue a response because she is unable to do so and thus is forced to abandon her query and to allow Edward to dictate the trajectory of the talk-in-interaction.

The lack of action ascription by the CP initially results from his lack of understanding, as shown by his repair. However, even when the turn is repaired, Edward still does not treat Angelica's talk as having any action, failing to acknowledge Angelica's repair after he has initiated it. Edward's lack of response is not treated as inapposite by Angelica as she is unable to do this. This extract then shows that PWA can be reliant on their CPs when producing their actions as they may be unable to follow up on their talk when ignored, leading to extended silences and the PWA controlling the trajectory of the interaction.

The final extract in this section differs from the three prior as it displays one way in which PWA are able to treat a response as inadequate and therefore a non-response. In Extract 19, Kate (CP) is shopping on her phone for some cereal for her new diet while Emma (PWA) watches her do this.

(19) 06EK-01-009-Almond

```
 1    EMM: (0.3) a cashew (0.4) and er almer
 2    KAT: yeah
 3    EMM: almon
 4    KAT: ((nods))
 5 →       (3.7)
 6    EMM: check me out er reading
 7         (1.2)
 8    KAT: I know (0.1) who do you think you are (0.9) [I] and you've
 9    EMM:                                             [er]
10    KAT: not got your specs on
```

Emma reads out some of the ingredients, "cashew (0.4) and er almer" on line 1. Kate responds with a "yeah" and Emma then repeats "almond" this time more accurately pronounced as "almon" (line 3). Kate acknowledges this repair briefly with a nod on line

4. A 3.7 second silence (line 5) follows while they both look at the phone, after which Emma resumes talking, celebrating her reading which she frequently has difficulty with, "check me out er reading" (line 6). After a further 1.2 second silence, Kate responds to this prompt of Emma's by doing a show of 'being impressed': "I know (0.1) who do you think you are" (line 8).

Here, Emma can be seen as treating the 3.7 second silence on line 5 as an absent, or inadequate response from Kate. Emma's turn "check me out reading" on line 6 following the silence displays that Emma's reading on lines 1 and 3 were an achievement to be celebrated, an that this celebration is missing from Kate's acknowledgement turn on lines 2 and 4. In response, Kate produces the sought after display of being impressed and celebrates Emma's achievement. Therefore, one way in which PWA can respond to silence is to re-ascribe meaning and action to their prior turn and by doing so display that the CP should have produced something more than was in their original response. However, this is only successful if the PWA is able to produce a turn that marks the CP's response as inadequate, otherwise like Amanda, Rick and Angelica in Extracts 16 to 18, they must accept the silence and allow their CP to maintain control over the direction of the conversation.

A silence can develop if it is unclear what a PWA has said or where the CP is orienting to another activity in which silence is an allowable feature of communication when another activity is relevant (see also Hoey, 2015). They do not always belong to PWA and can be attributed to communication partners mishearing or orienting to another activity. Silences can also be treated by PWA as belonging to their CP when a response is lacking or perceived as incomplete by the PWA. Marking a CP's non-response requires the PWA to undertake further interactional work in order to promote a response and ensure the progressivity of the interaction is maintained (discussed further in Section 4.3 and 4.3.3). This is a feat which, as shown above, is not possible for all PWA, some of whom must rely on their CP to dictate the trajectory of the conversation. Therefore, allowing a silence to develop can be damaging to PWA's social image as a competent communicator, particularly if they cannot modify or pursue their initial TCU.

The extracts in this section have demonstrated that PWA may be unable to

respond to silences in which a CP's response is not forthcoming. In the majority of the extracts within this collection, this occurs when the PWA's turn lacks clarity and consists of neologistic jargon, or semantic and phonemic paraphasias. The following two sections demonstrate how PWA treat silences that suggest trouble with the content of their turn which they are able to resolve, and silences that suggest a lack of alignment and affiliation from their CP.

4.3.2 Ambiguity and Progressivity

The presence of silence between speakers' turns can signal trouble with the prior turn. This section shows that PWA can follow a CP's inter-turn silence using an increment to claim the silence as an intra-turn pause and resolve ambiguities arising from the content in their initial TCU. Doing this provides a new TRP at which the CP may respond and avoids the initiation of a repair sequence. It is further shown that where PWA produce multiple increments, silences occur in-between and act as spaces for conditional entry to turn. Here, the hearer can provide a minimal token of understanding to display that intersubjectivity has been achieved.

In Extract 20, Dan uses an increment to resolve any potential ambiguity implied by an extended silence. This allows him to avoid the initiation of a repair sequence and demonstrate his communicative competence. Dan (PWA) and Sarah (CP) are discussing Bessie, a dog they occasionally look after.

(20) 05DS-01-007-SummerCoat

```
 1    SAR: hope she's not moulting when she comes (0.7) change the
 2         covers on me (0.2) settee again
 3    DAN: oh aye
 4         (0.6)
 5    SAR: heheh
 6    DAN: she'll be bad this time
 7 →       (2.2)
 8    DAN: the er (0.1) summer coat I think coming in
 9         (0.2)
10    SAR: yeah but why do some dogs do it and some dogs don't
```

Sarah issues a complaint about the amount of fur that Bessie sheds on line 2 saying that she will have to "change the covers on [their] (0.2) settee again". Dan agrees with this complaint, "oh aye", on line 3. 600 ms of silence follows after which Sarah laughs,

then a lapse of 2.2 seconds then occurs (lines 4 to 7). Dan then issues an assessment on line 6, "she'll be bad this time" which continues the sequence of lines 2 to 5 discussing Bessie's fur, though this connection is not immediately apparent. Dan then speaks again, continuing his prior turn "the er (0.1) summer coat I think coming in" (line 8).

The 2.2 second silence on line 7 is of interest here. It occurs just after Dan has offered an assessment, "she'll be bad this time". Prior to this, Dan has already responded to Sarah's turn on line 3 using a change of state token plus agreement, "oh aye". The silence of 600 ms on line 4 suggests that the next turn is open for self-selection and when Sarah laughs on line 5, she orients to her complaint turn as humorous while also marking the sequence closed. Therefore, Dan's assessment following on line 6 appears out of place in the sequence. Without the utterance being linked to the context of the prior talk, there is ambiguity in whether Dan means the dog's moulting or her general behaviour will be bad.

The 2.2 seconds of silence in which a response from Sarah is absent halts the progressivity of the interaction and indicates Dan's turn has possibly caused some trouble. Dan responds to this 2.2 second silence by identifying what about Bessie will be bad, "the er summer coat" (line 8). This retrospectively grounds Dan's assessment in the prior talk about the dog's shedding, while simultaneously providing reasoning for his assessment. Dan's addition here converts the inter-turn gap into his own intra-turn pause, which masks any potential suggested trouble while also adding additional information that resolves the ambiguity of his initial utterance. Sarah's response on line 10 does not mark the 2.2 second silence and continues the sequence, suggesting that whatever trouble was caused by Dan's assessment was resolved by his expansion on the prior turn. This shows that PWA can treat silence as evidence of trouble and work to resolve the trouble through clarifying their prior turn.

PWA can also resolve ambiguity through the use of relevance delimiting increments (Schegloff, 2000; G. Walker, 2004). In Extract 21, Emma (PWA) and Kate (CP) are discussing Prince Harry and Meghan Markle when Emma asks whether Kate has seen the show *Suits* which Megan Markle starred in (line 1).

(21) 066EK-01-009-Suits

```
1    EMM: you er f- er wers ers a watch that show
2 →       (0.3)
3    EMM: eh wos in
4    KAT: no I've never watched it
5    EMM: I uh started to watch it (0.3) erm (0.6) tch. er suits
```

Initially, Emma does not provide the name of the show, referring only ambiguously to "that show" (line 1). Emma says this with turn-final intonation and on the noun "show" then returns her gaze to Kate, further signalling the completion of her turn. During Emma's turn and in the following 300 ms silence (line 2), Kate's gaze and facial expression remain the same, fixed on Emma displaying her attentiveness to Emma's talk but with no indication of commencing a reply. The 300 ms silence can be viewed as belonging to Kate as it is the turn space in which she can provide an answer to Emma's FPP question. The silence and lack of motion to commence a response from Kate suggest that there is trouble caused by Emma's question. Emma's use of the referential determiner "that" presupposes that this information is within Kate's knowledge domain and Kate will know which show Emma means.

Emma responds to Kate's lack of response with the increment "eh wos in" (line 3), which is fitted to Emma's prior turn and converts the silence into her own intra-turn pause. This provides more specific information, namely that it is a television show Meghan Markle was in. Kate responds without any silence after this increment, "no I've never watched it" (line 4), showing she now has enough information to identify the reference. Emma has therefore resolved the ambiguity resulting from her choice of determiner while maintaining the progressivity of the interaction through minimising the silence. Thus, she has resoled the trouble before a repair is required and in a way that makes her clarification appear as a seamless part of her turn.

In Extract 22, Dan (PWA) also uses stance delimiting increments to secure a display of understanding from his CP. In this extract Dan (CP) is reminding Sarah (CP) of a house they saw in Craster-in-Merrin[4]. There is a lack of recognition from Sarah so Dan produces increments until Sarah shows recognition of the referent.

(22) 05DS-02-010-Craster

[4]Craster-in-Merrin, as with all the other names within this thesis, is an anonymised place-name, which as far as possible, preserves the syllable length of the original and Dan's trouble in production.

```
 1    DAN: I wunt have minded er (0.6) coo- er that one at err (0.1) can
 2         carckle .h carken tch. (0.1) £can't say i(h)t£
 3         (2.8) crah crah::ster
 4         (0.9)
 5    DAN: in <Mer:rin>
 6 →       (1.6)/((SAR thinking face))
 7    DAN: you know where went t.h for the car
 8 →       (0.8)
 9    DAN: and we went through and we saw [that flat's up for sale
10    SAR:                                [((gasps)) yeah::::::]
11         that's-that'll of gone now
12    DAN: oh yeah it has
```

In lines 1 to 5, Dan struggles to pronounce the location "Craster-in-Merrin", though appears to accurately do so by the end of line 5. 1.6 seconds of silence follows with no signal of recognition from Sarah. During this silence, Sarah's gaze remains on Dan and she shows a thinking face, suggestive of a lack of understanding (line 6). Dan then treats this silence as Sarah displaying a lack of understanding as he appeals to Sarah's role as a knowledgeable participant through the alignment token "you know", which works to pursue a response, and produces a stance delimiting increment that provides further clarification, "where we went t.h for the car" (line 7) (Clayman and Raymond, 2021).

This attempt to remind Sarah of a shared experience to assist with the identification of the reference does not work as another new TRP follows which stretches to 800 ms of silence in which Sarah does not provide the pursued signal of recognition (line 8). Dan again produces a further increment on line 9 that offers more information. This time his increment is successful as Sarah produces the prompted show of recognition though the gasp and elongated "yeah" (line 11) which allows the forward movement of the conversation to resume.

Initially, the silences on lines 6 and 8 belong to Sarah as they are spaces left by Dan to allow Sarah to produce a signal of recognition such as a backchannel or change of state token. Dan treats to the silences as displays of Sarah's trouble recognising the reference. His increments and supply of further details ensures that any issues resulting from the ambiguity of his reference are resolved, and that the trouble source is not due to Dan's initial challenge with the pronunciation of Craster-in-Merrin. As Dan produces increments, he claims these silences as his own, converting them to intra-turn pauses. Therefore, such silences are not always a result of aphasia, but occur purposefully as a

way to confirm whether intersubjectivity was maintained by the prior talk, or whether further clarification is needed. By allowing the silence, Sarah still provides a response, but the response is a nonverbal display of lack of understanding indicating a disjuncture in the intersubjectivity of the interaction.

This section has shown that PWA can use silences to gain a display of their CP's understanding of the PWA's turn. When that show of understanding is withheld, PWA are shown to treat CP silences as indicators of trouble, and some are able to discern what that trouble may be due to, for example an ambiguity in their host turn. In this collection, PWA with less severe expressive aphasia are then able to to attempt to resolve that trouble before a repair is required through adding further talk, such as increments, in order to ensure the progressivity of the interaction is maintained. The are fewer examples of this occurring for PWA with more severe expressive aphasia. Therefore, silence can be useful tool that allows interlocutors to present and recognise a lack of understanding and some PWA can choose to claim the silence as their own in order to resolve the trouble.

4.3.3 Affiliation, Alignment and Progressivity

As shown in Section 4.1 silence, or its absence, assists in identifying the next speaker's alignment with the prior turn. This section shows how PWA deal with a CP's silence that marks a potential disjunction in alignment and affiliation. PWA are shown to use stance delimiting increments (G. Walker, 2004) to take ownership of silences that suggest the CP's response will display disaffiliation and a lack of alignment, and modify the content of original TCU to make it more acceptable to their CP. This is done in a way that pursues a response and promotes alignment and affiliation. As such, PWA are shown to treat a silences as foreshadowing a potential upcoming dispreferred response and can in some cases successfully mitigate that trouble by altering their turn design.

In Extract 23, Dan (PWA) uses increments to convert the developing inter-turn silences during TRPs into his own intra-turn silence in a way that pursue a response from Sarah (CP) and promotes alignment. These increments both modify and justify his

original statement in order to promote affiliation, while maintaining the progressivity of the interaction. In this extract, Dan (PWA) has been complaining about the challenges of moving house and renovating while Sarah (CP) has been downplaying his complaints, saying that "we'll get there" (line 1).

(23) 05DS-01-007-FeelBetter

```
 1    SAR: we'll get there
 2         (2.8)
 3    DAN: tch. oh I feel better (0.3) this (0.7) you know (0.4) la-
 4         last couple of da:ys
 5 →       (0.5)
 6    DAN: now↓
 7 →       (1.3)
 8    DAN: in a [way (0.1) last week
 9    SAR:      [well you're getting your sleep] in aren't you
10    DAN: yeah I know (0.2) but it's not just that it's um (0.7) you
11         know (0.6) when we mo::ved (1.2) ah: I did feel it (0.1)
12         really bad
```

Dan explains that he has been feeling better the "last couple of days" (lines 3 and 4). 500 ms of silence follow this telling after which Dan adds "now" (line 6), then "in a way (0.1) last week" (line 8) after a further 1.3 second silence (line 7). This second addition is overlapped by Sarah who suggests Dan's feeling better is due to him "getting your sleep" (line 9). Dan contests this by explaining that his feeling better is due to more than him just being able to sleep, attributing his feeling bad to their moving house (lines 10 to 12).

During this extract there are multiple possible TRPs at which Sarah could offer a response. Dan's assessment of his well-being is syntactically, prosodically and sequentially complete after "last couple of days" (line 4). His telling provides a self-assessment on how he currently feels, a topic on which Dan has epistemic primacy (Heritage, 2011; Stivers, Mondada, et al., 2011). As Dan's telling about his feelings on lines 3 and 4 follows the dyad's discussion on the housing troubles, the implication is that Dan's "feeling better" is sequentially linked to their progress with the house renovations. Although Sarah is gazing at Dan on line 4, her response is delayed until line 9, suggesting a lack of alignment and affiliation with Dan's self-assessment. Sarah does not provide a receipt to Dan's telling, nor does she provide any display of empathy or agreement, and her silence indicates that her own evaluative stance does not match with Dan's.

Dan minimises the developing silences and simultaneously pursues a response through the use of two incremental stance delimiting extensions "now" (line 6) and "than I were last week" (line 8). These re-complete his turn, provide more detail, and offer new points of possible completion where Sarah can respond. They show his treatment of Sarah's silence as a dispreferred challenge to his own stance, which is borne out by the turn design of her eventual response, including use of turn-initial "well" and her comment on Dan's behaviour. This extract then demonstrates that PWA's resources to monitor and understand silence are not always impacted by aphasia, nor are silences in conversations with PWA always a result of word-finding or processing difficulties.

Extract 24 shows how a PWA's use of an increment following a CP's dispreferred silence helps to minimise the impact to social solidarity and promotes the progressivity of the interaction. In this extract, Yasmin (CP) queries whether Antony (PWA) has swept their drive. Antony's reply implies that he has done a partial job clearing the drive because they need to use a leaf blower (line 1).

(24) 01AY-02-011-Drive

```
1    ANT: yeah:: f-well we need the blower don't we
2 →       (0.4)
3    ANT: sometimes
4    YAS: ((scrunches face)) mmhh: (0.5) [well yeah] you can either get
5    ANT:                                [to do the-
6    YAS: the blower out or just sweep it
```

Antony's tag question at the end of line 1 is designed to prefer agreement or acceptance of his excuse that "we need the blower don't we". However, 400 ms of silence follow this which Antony appears to treat as a signal of Yasmin's forthcoming disagreement. This treatment is shown by Antony's increment "sometimes" (line 3), which backs-down on his original assertion and modifies his host turn in such a way that may make it easier for Yasmin to affiliate with. This increment also allows Antony to claim the 400 ms silence that was Yasmin's inter-turn gap and commencement of her dispreferred response and convert it into his own pause through the sequential fitting of the adverb.

Antony's "sometimes" increment provides a new TRP in which Yasmin can respond. Her reply on lines 4 to 6, "mmhh: (0.5) well yeah you can either get the blower out or just sweep it" is still not wholly affiliatory. Her hum of "mmhh" along with her scrunched facial expression suggest disagreement, and the following discourse marker

"well" signals that a non-straightforward response is forthcoming (Schegloff and Lerner, 2009). In her verbal reply, Yasmin does show partial agreement, "yeah you can either get the blower out" thereby demonstrating that the increment has succeeded in partially promoting affiliation with Antony's stance. Yet the conclusion of response, "or just sweep it" though mitigated, still disagrees with Antony's stance. This somewhat hedged response appears to have been aided by Antony's inclusion of the adverbial increment "sometimes" which modified his stance and made it possible for Yasmin to partially align with him.

Extract 25 differs slightly from the prior extracts in this section. It shows how PWA respond to silences that occur when they are having trouble in producing further talk. Such silences could imply PWA's own lack of alignment and affiliation if they are unable to complete their turn. The following extract displays how pursuit and maintenance of alignment and affiliation can occur when PWA have severe expressive difficulties. In this extract, the recording has just begun and Edward (CP), who prior to this was busy preparing food, asserts that he and Angelica (PWA) should be talking (line 2).

(25) 10AE-02-023-Engaging

```
1    EDW: right (0.2) s(h)o we're supposed to be enga:rging
2         conversation now
3    ANG: mmh h.
4 →       (0.6)
5    ANG: .h yus
6         (0.7)
7    EDW: .h: so anyhow
```

Angelica appears to attempts to comply with Edward's assertion on line 3, saying "mmh" and producing an in-breath. This is followed by 600 ms of silence (line 4) then further talk from Angelica in the form of an in-breath and a "yus" (line 5). After this there is another 700 ms of silence. Then Edward, who has still been preparing food during Angelica's turns, issues the discourse markers "so" and "anyhow" to mark a divergence of the topic from the prior talk, after which he commences a new topic (line 7).

Angelica's (PWA) expressive communication is affected by aphasia and so when progressing the conversation she is limited in what she is able to contribute. Here, she

agrees with Edward's (CP) suggestion that they should be talking but she is unable to progress the conversation further. This results in two silences (lines 4 and 6) that may suggest a lack of affliation and alignment with Edwards suggestion due to her lack of "enga:rging in conversation". In order to show maximal affiliation with Edward's assertion, Angelica could produce further talk. However, the ability to initiate new topics can be impaired by aphasia and here the in-breath followed by a silence suggest Angelica is having difficulty commencing a new turn (R. Wilkinson, Lock, et al., 2011). Instead, after 600 ms Angelica produces a further agreement "yus" (line 5). This is possibly an increment fitted to her prior turn, but it is unclear whether this is the case.

Neither of Angelica's turns fully comply with the implicit action present in Edward's suggestion of producing more talk. What her "yus" does do is restate Angelica's alignment with Edward's proposed course of action. It also minimises the silence and provides a new transition space in which Edward can respond, which he then does. Through this reaffirmation then, Angelica is able to masks the fact that she cannot do the affiliative response of producing a new topic by treating Edward's turn as an observation rather than a request for her to initiate the conversation. Angelica may be unable to initiate a new topic so is perhaps presenting herself as passing on the opportunity to do so.

This extract, while not straightforward, may then demonstrate that PWA treat silence as something which may indicate a lack of affiliation and alignment, and as something to be minimised in conversation. Angelica uses the minimal speech she has available to to pursue talk from her interlocutor when struggling to produce her own speech.

Sections 4.3.1, 4.3.2 and 4.3.3 have shown that PWA are capable of treating silences differently depending on the local context of the interaction. In some extracts within this collection, they are shown to be able to adapt their turns in light of the presence of silence, while in others, particularly where silence arises out of a lack of response from their CP, PWA appear reliant on their CP to resolve the developing silence.

4.4 Chapter Summary

Section 4.1 has shown that PWA do not always require additional time to formulate a response and are able to utilise silence to communicate a forthcoming dispreferred or avoid it when producing a preferred response. Silence may also occur prior to a preferred response due to aphasia, which can result in a misunderstanding that must be repaired in the following turns. However, as shown, this is not the case for all PWA.

Section 4.2 demonstrated that PWA still possess the resources to signal turn continuation across a silence. For those instances where PWA are struggling to produce a turn, minimal or no commitment to TCU completion is displayed by PWA and their gaze becomes directed towards their CP. This leads the CP to take over the turn and assist the PWA to completion without the PWA having to explicitly express their difficulties.

The analyses in section 4.3 have shown that when a silence results from an absent SPP and an action is not ascribed to a PWA's turn by the CP, not all PWA can resolve these non-response silences, particularly those with limited expressive abilities. Such silences appear to arise when there is a issue with the *form* of a PWA's turn. As some PWA have limited resources to pursue a response, this can lead to their CP controlling the trajectory of the talk. In cases where PWA treat silence as displaying trouble with the *content* of their turn, many PWA appear capable of resolving such trouble. The PWA may claim a silence to produce additional clarifying talk and a new TRP at which a CP can respond. Finally, this chapter has demonstrated that PWA can recognise when a silence may signal a CP's possible forthcoming dispreferred or disaligned response and are able to produce further talk that pursues a response and promotes affiliation and alignment from their CP.

Chapter 5, Silence in Repair, now turns to analysing silences that occur when there is trouble present within talk that requires the initiation of a repair sequence to resolve it.

Chapter 5

Silence in Repair

This chapter shows how silences are used and understood when there is trouble within conversation. This trouble, often signalled by the presence of silence then leads the participants to initiate repair. Section 5.1 looks at silences within PWA's self-repair and shows how silences in self-initiated repair are accounted for by turn-holding features, which are absent in other-initiated repair. In other-initiated repair, CP allow silence, similarly to in neurotypical repair, before initiating a repair sequence.

Section 5.2 then analyses repair sequences involving candidate completion. It shows that PWA use silence, gaze and perturbations within their speech to demonstrate difficulty with completion of a repair. This helps to recruit the CP into the repair sequence and gain their assistance via candidate solutions to the repair. Finally, Section 5.3 analyses word searches and shows how PWA again use turn-holding features to frame the search as self-directed. When turn-holding features are absent, PWA can use gaze during silences to request the CP's assistance or the CPs sometimes will instead treat the silences as the PWA displaying difficulty and offer a prompt to assist them.

5.1 Silence in Self-Repair

This section shows that repair sequences involving PWA and CPs occur in a manner similar to neurotypical repair sequences. In PWA's self-initiated repairs, where

silences are present within repair, they are accounted for by the PWA's use of turn-holding features. In cases of other-initiated repair, turn-holding features are typically absent. Silences occur between the end of the trouble source turn and the CPs repair initiation, signalling trouble with the just-completed turn. This silence allows space for the PWA to attempt a self-repair, though this opportunity is infrequently taken, resulting in the CP frequently initiating the repair. The PWA then resolves the issue through repairing the identified trouble source.

5.1.1 Self-initiated, Self-Repair

Section 5.1.1 shows that PWA, similarly to neurotypical speakers, are able to recognise trouble within their speech and repair it without the presence of silence, while signalling to their interlocutor that the repair is under way. It shows that when silences are present, they are accounted for by turn-holding features. This shows that PWA orient to the silence as a location where turn loss may occur. Using turn-holding features then allows the PWA to produce a self-initiated, self-repair. This is seen throughout the extracts within this collection for all of the PWA.

Extract 26 shows how PWA's repair can take the form of a neurotypical repair, occurring without silence. Edward (CP) is cooking while Angelica (PWA) watches. Edward suggests that they make a peach upside-down cake for dessert on line 1

(26) 10AE-01-018-Peach

```
1    EDW: shall we make a peach upside-down cake
2         (0.5)
3    ANG: pt. ooh es (0.5) yes (0.4) sus veach .h down °oh-h°
4 →       ((looks away)) (1.1)
5    ANG: ah: upsized downj cake ((returns gaze to EDW on "down"))
```

Angelica agrees with Edward's suggestion and attempts to repeats the phrase "peach upside-down cake" on line 3. Angelica's first production of "sus veach .h down" is inaccurate and omits the word "upside". Angelica stops before producing the noun "cake", and self-interrupts with an "oh" change of state that suggests recognition of her error. She then breathes in and gazes away which holds her turn over the 1.1 second silence on line 4. These features frame the initiation of a self-repair process, also seen

in neurotypical repair, as shown by Angelica restarting her attempt on line 5 after the 1.1 second pause. During this silence Angelica looks away from Edward, withdrawing from the talk and showing that she is engaged with completing her repair. Her repair then occurs on line 5 as "upsized downj cake", after which Edwards' gaze turns to his phone and he resumes the talk picking up the conversation from prior to the insert sequence of repair.

The 1.1 second silence on line 4 allows time for to allow time Angelica to produce her repair and is treated by the CP as such as Edward's gaze remains on Angelica during this silence, showing his attentiveness to her talk. He does not attempt to repair for her as her in-breath and withdrawal of gaze, like with word searches, suggests the repair is self-directed and does not require assistance. These turn-holding features performed as part of the repair sequence show Angelica's orientation to the fact that allowing an extended silence could leave her vulnerable to turn-loss. Angelica then provides an almost completely accurate repair on line 5. This extract then demonstrates that PWA can use silence plus gaze and minimal turn-holding features to initiate a repair and prevent an incursion of an other-repair and that they engage in self-repair sequences with the same structure, including silences, as neurotypical speakers.

Extract 27 shows that PWA can attempt to repair a trouble source without employing silence, as occurs in neurotypical speech, but, should this fail, PWA can use silences as a space that invites the CP to provide assistance through other-repair. However, should the CP allow silence to prolong during a repair sequence, this can result in the PWA undertaking further interactional work to self-repair the trouble source. In this extract, Dan (PWA) and Sarah are looking at houses online and Dan is describing a house in Craster-in-Merrin but has difficulty producing the name.

(27) 05DS-02-010-Craster

```
1    DAN: I wunt have minded er (0.6) coo- er that one at err (0.1) can
2 →       carckle .h carken tch. (0.1)
3 →       £can't say i(h)t£
4 →       (2.8)
5         crah crah::ster
6         (0.9)
7    DAN: in <Mer:rin>
```

On line 1, Dan first hitches using the filler "er", displaying trouble with his forthcoming

speech and making relevant the following 600 ms silence. The silence is used to show trouble and frames the opening of the repair sequence. He aborts his first attempt at producing a location, "coo-", and attempts to repair, though only manages to correct it to "can carckle". These occur with minimal silence, as seen in neurotypical conversation. Dan takes an in-breath and retries the repair attempt with "carken" (line 2), again issued with no silence.

Following these attempts, Dan then begins to smile and laugh as he comments on his inability to produce the location "Craster". His laughter marks his humorous stance towards the failed repair sequence, which has been shown to recruit assistance from the CP (R. Wilkinson, 2007). There is then a 2.8 second silence without turn-holding features that invites Sarah to assist Dan by producing an other-repair. Sarah's gaze returns to Dan but she does not join in with the laughter, nor does she interrupt the silence or produce a candidate other-repair, as discussed in Extract 22. Sarah may not recognise the referent and so is unable to assist Dan with the repair. Following this silence, Dan again re-tries the self-repair attempt (line 5), this time successfully producing the proper noun "Craster", after a further hitch.

The failure to accurately produce the repair and gain recognition from the CP is what results in the presence of an extended silence. The 2.8 second silence provides a space in which Sarah could assist with the repair, though she does not due to a lack of recognition of the referent Dan is trying to produce. This shows how PWA may have to undertake further interactional work to achieve intersubjectivity when silences are left unfilled by CP. This can also be seen in the following extract in which the PWA self-repairs when it becomes clear that there is a breakdown in intersubjectivity.

There are instances where PWA are unable to produce their turn and require assistance for their CP to do so, or a show of understanding that intersubjectivity is maintained. We have seen in Extract 22 how PWA can attempt to invite their CP into the repair sequence. The next extract, Extract 28, shows how PWA can attempt third position self-initiated self-repair following a silence in which an absence of intersubjectivity is signalled in an attempt to repair the trouble and resume progressivity. This attempt when coupled with silence and gesture serves to invite a candidate interpretation of the PWA's repair from their CP. Simon (PWA) is showing Fay (CP)

photographs on his tablet of his cycling group and is trying to explain to Fay that two of the people in the photograph have had strokes. Fay only claims to understand this initially, which causes Simon to repeat and repair his speech, then invite a self-initiated other-repair from Fay.

(28) 04SF-01-004-Strokes

```
 1    SIM: one ((points to one part of tablet screen))
 2         (0.3)
 3    FAY: uh huh
 4         (0.6)
 5    SIM: guh- er bai ((points to second part of tablet screen))
 6         (0.5)
 7    FAY: yep
 8 →       (1.1)
 9    SIM: one ((points to first part of tablet screen again))
10    FAY: mmh hmm
11    SIM: .h two ((points to second part of tablet sceen again))
12    FAY: mmh
13 →       (1.4)/((SIM rolls arms in a 'carry on' motion))
14    FAY: oh they had strokes
15    SIM: .h s:trokes
```

On lines 1 and 5, Simon shows Fay a photograph on his tablet and points to two different people in the photograph. Fay provides tokens of understanding, "uh huh" and "yep", following these two turns (lines 3 and 7). Following Fay's "yep", there is a 1.1 second silence in which Simon looks to Fay who remains gazing at the tablet showing no pre-beginning or response behaviours (line 8), thus suggesting Simon has selected Fay as next-speaker and that her "yep" is inadequate as a response. When no further response from Fay occurs, Simon repeats his movements of indicating two places on the tablet and says "one" and "two' (lines 9 to 11). Fay issues a further continuers "mmh hmm" and "mmh" on lines 10 and 12, before Simon then rolls his arm in a circular 'carry on" movement (line 13), which Fay treats as an invitation for a candidate repair production of Simon's turns, "oh they had strokes" (line 14). Simon then appears to confirm this candidate interpretation through his repetition of "strokes" on line 15.

Simon's speech is fluent but features a lot of jargonistic neologisms that make the content of his turns difficult to understand. The 1.1 second silence on line 8 is used by Simon as an invitation for Fay to display the maintenance of intersubjectivity by offering a candidate interpretation of Simon's talk, which she later does on line 14 after much prompting from Simon. Fay's tokens of understanding are treated by Simon as

only claiming understanding. This shown by Simon initiating a third position repair of lines 1 and 5 by repeating the same gestures on lines 9 and 11, and repairing his telling from "guh- er bai" to "two" as he points at the second figure. Fay again issues claims of understanding after each of these turns, "mmh hmm" and "mmh" as though understanding Simon's turn, though does not produce a candidate interpretation.

When Simon then looks towards Fay after his repaired telling and gestures by rolling his arms in a circular motion (line 13), this gesture identifies the silence as Fay's. It prompts Fay into producing a previously absent candidate other-repair of Simon's turn, which is accompanied this time by a display, rather than merely a claim, of understanding, "oh they had strokes" (Heritage, 1984a; T. Walker, Thomson, et al., 2016). Fay's turn shows that she has interpreted Simon's gaze and his gesture during the silence as an indication that she should speak and produce a candidate understanding of Simon's turn. When Fay does produce this repair (line 14), it enables Simon to repeat "strokes" in a confirmation and repair of the utterance he was attempting to produce.

This shows that PWA can use silence and gesture as a way to recruit PWA into a candidate production of an unclear self-repair, with the CP providing the phrasing once the meaning of PWA's words becomes clearer. It also shows how the lack of adequate response from the CP, namely a claim rather than a display of understanding, can result in the PWA producing a self-initiated self-repair in the third position that invites the CP to assist through candidate completion. Therefore, CPs are not the only ones to allows silence within repair. Simon has allowed silence following his CP's response in anticipation of a candidate interpretation of his turn as a way for the CP to demonstrate understanding and progress the talk.

These extracts have shown that it is possible for a PWA to produce a self-initiated, self-repair with or without a silence being present and that when silences are present, turn-holding features are used to claim that silence as belonging to the PWA. This section has also shown that silences can provide a point where CPs may be invited to assist in the repair, though this is not always taken by the CP, which can result in the silence becoming prolonged and the PWA then undertaking further interactional work to resolve the issue. The invitation of the CP into the repair is explored further

in Section 5.2, while the following section looks at how CPs can indicate that a repair is required from the PWA; other-initiated, self-repair.

5.1.2 Other-Initiated, Self-Repair

Section 5.1.2 shows how during instances of other-initiated repair, silences occur between the end of the trouble source turn and the CP's initiation of the repair, as occurs in neurotypical communication. In contrast with Section 5.1.1, PWA do not use turn-holding features, displaying that their turn has come to completion. The silences allowed by the CP signal trouble with the PWA's just-provided turn, while also treating PWA as capable of making use of gaps as an opportunity space for self-initiation of repair. In the extracts in this collection, this opportunity is frequently not taken by the PWA and the CP has to initiate the repair sequence.

CPs treat PWA as able to interpret the inter-turn silence as a self-repair opportunity as shown by Extract 29. This extract demonstrates a CP allowing silence before producing an other-initiation of repair. In Example 29, Emma (PWA) is using her phone to show Kate (CP) pictures of a meal. Kate queries what the meal is on line 1.

(29) 06EK-02-019–Haddock

```
 1    KAT: what is it
 2         (3.7)
 3    EMM: .hh err: (0.3) aggit
 4 →       (0.8)/((EMM turns to KAT, starts to smile
 5 →      while KAT looks at picture with thinking face))
 6    KAT: ((turns to EMM)) who=
 7    EMM: =huhh:::huh .h er fish
 8    KAT: yeah
 9    EMM: haggit (1.2) h:ad:ock[:
10    KAT:       ((nodding))     [r]ight yeah yeah
```

Emma responds to the query by identifying the fish as "aggit", an approximation of the word "haddock" on line 3. There is then an 800 ms gap while Emma turns to Kate and begins to smile while Kate remains staring at the picture (lines 4 and 5). Following this, Kate turns from looking at the picture to face Emma and produces an other-initiation of repair "who" online 6. Emma responds to this initiation with laughter, an in-breath and repair token, then the repair "fish" on line 7. Kate appears to treat this as insufficient through her continuer "yeah" on line 8, after which Emma then attempts

to produce the repair in earnest, repeating "haggit" followed by "h:ad:ock" after 1.2 seconds of silence on line 9. Kate then nods, accepting this repair and displaying her understanding "right yeah yeah".

On line 3, there are no turn-holding features present in Emma's turn, her intonation is rising and there are no indicators that Emma's TCU is unfinished, nor any displays of commitment to further talk. Her smile suggests an acknowledgment of the incorrect production of the word "haddock", but there are no features that suggest further talk or a repair initiation from Emma. Kate's 800 ms silence in response implies that there is trouble with Emma turn, as evidenced by Kate's following repair initiation on line 6. This 800 ms silence then provides space for Emma to provide a self-initiated repair, though this opportunity is not taken. Allowing this silence shows that Kate is treating Emma as capable of producing a self-initiated, self-repair.

Kate does not produce any in-breaths, gestures or other pre-beginning behaviours during this silence. Her subsequent repair initiation on line 6 also passes the turn back to Emma to repair as is the preference in neurotypical interaction. It also allows Kate time to try resolve the trouble herself by identifying the mispronunciation, as shows by her gaze remaining on he picture while displaying a thinking face (Kendrick, 2015). Emma's smile following her incorrect production and immediate laughter latched on to Kate's other-initiation of repair suggest that she has noticed the trouble with her talk and is treating it as a humorous occurrence. When Emma does not self-initiate repair, Kate's category-specific interrogative "who" on line 6 identifies the trouble source and makes relevant a repair as the next turn. Emma then offers the superordinate term "fish" as a substitution for "haddock".

After Kate identifies this repair as insufficient with her continuer "yeah" on line 8, Emma then repeats her mispronunciation of "haggit". Again, a 1.2 second silence follows in which Kate gazes at Emma, withholding a signal of understanding. This again shows Kate's use of the silence as a space in which Emma can produce a self-initiated, self-repair. Emma also treats this silence as an additional repair initiator, and subsequently retries her repair, this time successfully producing the target word "haddock", which confirms that Emma is capable of using the transition space as a self-initiated self-repair location. The use of humour allows Emma to initially avoid

self-repair, though Kate's subsequent misunderstanding and other-initiation of repair then cause Emma to produce multiple repair attempts until intersubjectivity is re-achieved. This extract demonstrates that CPs allow time for PWA to initiate repair of a trouble source, even when there is evidence of the PWA having difficulty producing their turn, at the expense of maintaining the progressivity of the interaction.

Extract 30 shows again how silence is left by the CP between the repairable and the other-initiation of repair, thereby treating PWA as capable of initiating self-repair and aligning with the interactional preference for self-repair over other-repair. Rick (PWA) and Alice (CP) are sat watching television when Rick turns to Alice to ask about when some family members go to stay in a caravan.

(30) 03RA-03-015-Caravan

```
1    RIC: weh- when do they go to:
2         (0.9)
3    ALI: ((turns to RIC)) pardon
4         (0.2)
5    RIC: when do they go to (0.1) caravan
6         (0.4)
7    ALI: Monday
```

Rick leaves his question "when do they go to:" incomplete on line 1 and a 900 ms silence follows, during which Rick's gaze is on Alice, while she watches the television. After this silence, Alice initiates repair with an open-class repair initiator, "pardon", on line 3. Rick then provides the repair by repeating his query with the object of the query present this time "when do they go to (0.1) caravan" (line 5). Alice then responds with the SPP answer to Rick's question, "Monday" on line 7.

Like with Kate in Extract 29, Alice produces no pre-beginning behaviours during the 900 ms silence after Rick's initial turn, showing her treatment of the silence as belonging to Rick. Here, Rick can complete or repair his utterance but does not and his gaze suggests that he has passed the turn to Alice. Alice's other-initiation of repair, "pardon", displays that she has no understanding of Rick's turn (line 3). This leads Rick to repair his turn, this time with fewer perturbations and with the object of his original clause, "caravan", present (line 5). Alice then answers his question on line 7, without any further trouble or initiation of repair, thereby closing the repair sequence. This shows that PWA's repair sequences are not always prolonged and that silence

is a part of other-initiated repair that both signals trouble and allows PWA space to initiate repair themselves. The fact that Rick does not, along with his treatment of Alice's repair initiator as due to lack of hearing, shows that Rick could not initiate the repair as he did not know what the trouble source was.

This section has shown that PWA can use silences in repair in a manner that is reflective of neurotypical individuals. PWA demonstrate sensitivity to turn loss when conducting self-initiated, self-repair as displayed by their use of turn-holding features. CP also appear to treat PWA as capable of responding to silences and repair in the same way as occurs in neurotypical interaction, as a self-repair opportunity. When turn-holding features are absent from PWA's turns prior to repair sequences, PWA do not take the opportunity to initiate repair. If PWA are unable to, or simply do not initiate repair, CP do so for them following a silence. the length of which is similar to the average silence of 700 ms (Kendrick and Torreira, 2015) left in neurotypical other-initiated repair.

5.2 Silence in Candidate Repair Sequences

Section 5.2 analyses silences in CP's candidate repairs that are accepted by PWA (Section 5.2.1) and candidate repairs that are rejected by PWA (Section 5.2.2). These sections show how PWA use silence in combination with gaze, gesture and speech perturbations to signal difficulty with a repair and invite the CP into the repair sequence, implicitly requesting the CP's assistance which occurs as the production of a candidate repair. This use of gaze and gesture differs from the turn-holding features used in PWA's self-repair, with turn-holding features typically absent within these sequences. As with other-initiations of repair, silences occur before CPs offer candidate solutions. The analysis shows that the CPs treat the silences in repair sequences with PWA in the same way as with neurotypical speakers.

5.2.1 Other-Initiated, Candidate Repair

This section shows that PWA use a combination of silence, gaze and speech perturbations to signal their difficulty with their turn to the CP, which encourages the CP to take a turn and produce a candidate solution to the repair. CP again regularly allow space for PWA's self-initiated, self-repair before they produce the repair themselves within this collection.

Extract 31 shows how silences provide a space for CPs to supply an other-initiated, other-repair when PWA display a lack of orientation to providing a repair due to production difficulties. Emma (PWA) and Kate (CP) are discussing dieting.

(31) 06EK-01-009-Metabolism

```
1    EMM: then your eh (0.3) m- ma:r:a:rpersisum [puhhuhhuhhuhhuh
2    KAT:                                        [((grins))
3 →  EMM: ((turns to KAT)) (0.4) pt. .h (0.5) erh=
4    KAT: ((smiling and looks to EMM)) £were that supposed to be
5         metabolism
6          [by any chance£]
7    EMM:  [yes hehehh
```

Emma begins to produce a turn implying that having breakfast will "kick off" Kate's metabolism, "then your eh (0.3) m- ma:r:a:rpersisum", but is unable to correctly produce "metabolism" and breaks off into laughter (line 1). Kate grins while Emma laughs and Emma turns to Kate, beginning a heavily perturbed turn interspersed with silences on line 3, "(0.4) pt. .h (0.5) erh". Kate responds to this by turning to Emma and offering a candidate repair of Emma's initial turn "were that supposed to be metabolism by any chance", while smiling at her (lines 5 and 6). Emma then confirms this other-repair as the word she was attempting to say (line 7).

Emma acknowledges her failure to produce the target word, "metabolism", as an error through her subsequent laughter (R. Wilkinson, 2007). This laughter marks trouble with her turn, noting it as problematic. Juxtaposing the laughter with the repairable displays an effort for Emma to pass on a self-repair attempt while downplaying the trouble with her turn, similarly to how young children can use laughter in an effort to close down a repair sequence (Sidnell, 2010b).

400 ms of silence follows in which Emma gazes at Kate. Emma then produces

perturbations that signal her difficulty with further talk "pt. .h". This is followed by a further 500 ms of silence, again with Emma's gaze directed at Kate. Kate turns to face Emma during this 500 ms silence. The securing of mutual gaze combined with Emma's perturbations and silence, are treated by Kate as Emma showing that she is passing on the repair and provides space for Kate to produce a turn. Kate frames the repair and offers a candidate solution (lines 5 and 6). She also complies with Emma's treatment of the repairable as humorous through her use of smile voice. Kate provides a candidate repair as part of a guess strategy, positioning Emma as the next-speaker and a competent participant capable of identifying and accepting the corrected lexical item. Thus, silence is used here to secure Kate's recipiency and provides a space for her to issue a candidate repair of the trouble source. The CPs treatment of the PWA's silences and speech perturbations as the PWA's passing on the repair reduces the interactional burden on the PWA and allows the trouble to be resolved in a way that passes the turn back to the PWA.

A similar candidate repair mechanism is seen in the following extract in which the CP initiates then produces the repair when the PWA has difficulty doing so following a silence. In Extract 32, Alice (CP) moves from a weaker other-initiation, of repair using a category specific interrogative, to fully producing a candidate solution when Rick (PWA) displays difficulty via a silence. Rick and Alice are watching TV, when Rick comments on a car that is on-screen.

(32) 03RA-01-003-Pam'sCar

```
1    RIC: duzzit d[is like gas (0.5) car
2                 [((RIC points to TV, ALI looks where he points))
3 →       (1.7)
4    RIC: ((looks towards Alice))
5    ALI: whose car
6         (1.7)/((RIC's gaze remains on ALI, he takes in-breath and
7 →       purses lips))
8    ALI: Pam's
9    RIC: Pam's yeah
```

Rick points to the TV and says that a car on-screen is like "gas" car (lines 1 and 2). 1.7 seconds of silence follow this statement, after which Rick looks to Alice on line 4 which appears to pursue a response from her. This referent is unclear to Alice, as she produces an other-initiation of repair using a category-specific interrogative "whose"

plus a partial repeat of Rick's turn, "car", on line 5. 1.7 seconds of silence follows this repair initiation, during which Rick gazes at Alice, taking a small in-breath and appearing to purse his lips (line 7). Alice then offers a candidate repair of "Pam's" when Rick fails to do so (line 8), which Rick confirms as the person he was referring to in line 1.

The silence on line 3 displays the first indicator of trouble. Rick turns to Alice when she does not respond, identifying that Rick is treating the silence as belonging to Alice. The silence provides a space for Rick to initiate a repair, as is preferred in neurotypical interaction, and in interaction with PWA, as seen in the extracts in Section 5.1.2. Rick's subsequent lack of repair initiation suggests that he has not recognised any trouble with the production of his turn. Alice looks to the TV following Rick's gesture on line 2, also using the silence as space to identify the referent in Rick's turn and thereby resolve the trouble without necessitating a repair sequence. This appears unsuccessful as Alice then initiates repair. In order to conclude the repair sequence, Rick just has to self-repair by providing the identity of the unclear referent again.

The 1.7 seconds of silence that follows (line 7) this time belongs to Rick. His gaze remains on Alice, and he takes an in-breath signalling an attempt at forthcoming speech while pursing his lips in an anticipatory production of a /p/, the beginning sound of the referents name. However, he halts and does not say the name. This suggests that Rick's silence results from him having difficulty with the completion of the repair. Alice then treats the silence as Rick showing an inability to provide a self-repair, as shown by her subsequent issuing of a candidate solution, "Pam's" on line 8. Rick is then able to confirm Alice's candidate through a repeat plus agreement token in the next turn. Therefore, PWA are afforded multiple opportunities to self-repair, and candidate repair occurs when difficulty producing a repair is signalled by PWA. Silence is a way to negotiate who will perform the repair.

The analysis above shows how CP treat PWA's silences as demonstrating difficulty with repair and can offer a candidate solution to resume the progressivity of the interaction after leaving the PWA space for the production of a self-repair. In contrast to this, Extract 33 demonstrates how CP can use a silence following a PWA's failed self-repair attempt as a space to produce a candidate repair that misinterprets the

PWA's speech. The silence provides an opening for this form of intentional misinterpretation of the PWA's talk. In this extract, Edward (CP) and Angelica (PWA) are in the kitchen talking while Edward cooks. Edward offers Angelica a coffee. Typically, throughout the conversations collected from Edward and Angelica, Edward works with Angelica to try to understand her unclear utterances. This often involves lengthy repair sequences, as seen in Extract 35. Here, however, Edward appears instead to misunderstand Angelica's turn as a joke, treating her unclear turns as an offer to assist him with cleaning up while he cooks.

(33) 10AE-02-023-Bin

```
 1    EDW:  [do you need a coffee ((gazes at ANG))
 2    ANG:  [((waves hand in front of mouth))
 3         (0.3)
 4    ANG:  [efs and us
 5          [((shakes head))
 6 →       (3.2)/looks to EDW and shrugs))
 7 →       (2.3)/((EDW collects remains of cooking prep into tub))
 8    EDW: did you say you wanted to put that in the bin for me
 9         (2.9)/((ANG takes rubbish from EDW and goes to bin))
10    EDW: thanks mum (0.7) obviously you didn't but
```

The extract begins with Edwards offering Angelica a coffee on line 1, "do you need a coffee". Angelica appears to reject Edward's offer through the unclear jargon (line 4) and the shake of her head on line 5. Edward treats this as a rejection as he does not proceed to make her a coffee an carries on preparing food for cooking. Angelica attempts to produce further talk but has difficulty doing so: she waves her hand in front of her mouth (line 2), produces some unclear syllables, "efs and us" (line 4) then, during a 3.2 second silence on line 6, turns to Edward and shrugs. This may be in response to Edward's query about the coffee but, as shown extract 8 and many other extracts within the collections, Angelica is able to produce simple "yes" and "no" responses and the context of her turn suggests more than just a polar response. After Angelica shrugs at the end of the 3.2 second silence, Edward looks away from her and begins collecting rubbish during the next 2.3 second silence that follows (line 7). This displays that he is treating Angelica's shrug on line 6 as the completion of her turn and the abandonment of that turn and the repair attempt.

In the absence of a repair from Angelica, the progressivity of the conversation has stalled. Her abandonment of her turn and the ensuing silence show that she is not

engaging in a repair sequence. Edward uses the silence left by Angelica to produce a candidate solution of Angelica's prior turn "did you say you wanted to put that in the bin for me" (line 8). Based on the length of Angelica's utterance and her gestures on lines 2 and 5, it is clear that this is not an accurate candidate interpretation of Angelica's turn. However, rather than rejecting the candidate response, Angelica implicitly accepts it by taking the rubbish from Edward and moving towards the bin. Though Edward acknowledges that he knows this is not what Angelica was attempting to say (line 10), it is clear that allowing PWA's silences to prolong can result in them becoming vulnerable to misinterpretation by their CP.

Therefore, other-initiated candidate repair could be used to attribute actions to PWA that they never intended, particularly if they have shown that they are unable to self-repair and are relying on their CP to accurately interpret their speech. There are few examples of this occurrence within the data-set and in the majority of extracts the CP's candidate repair appears to reflect that which the PWA attempted to produce, as shown by their acceptance of their CP's candidate other-repairs. However, this extract does illustrate that leaving silences unfilled following an abandoned repair attempt leaves PWA vulnerable to misinterpretation by their CP. The next section turns to PWA's rejection of candidate repairs and shows how silences are negotiated when the candidate solution offered by the CP is incorrect.

5.2.2 Other-Initiated, Candidate Repair Rejection

Continuing from Section 5.2.1, Section 5.2.2 displays how PWA and CP negotiate silences in repair sequences in which candidate solutions which are rejected by PWA. This section shows that after rejection of a CP's candidate repair, silences intersperse the repair cycles and perform two roles. Firstly, they allow the CP to attempt to resolve the trouble by searching for a new candidate solution. Secondly, the silences, along with gaze, gesture and perturbed speech, are used by the PWA to re-invite the CP to produce another candidate solution.

Extract 34 shows how participants jointly negotiate this form of breakdown in intersubjectivity. This extract centres around a former colleague of Luke's (PWA).

Prior to the transcript below, Chris has claimed that this colleague worked in the Chemistry department of a university. Luke however, disagrees with this claim.

(34) 07LC-01-012-Slimy

```
 1    CHR: that's where um (1.2) whatchamacallit (0.1) slimy professor
 2         was Jorry (0.6) Professor Jorry worked in there didn't he
 3         (1.1)
 4    CHR: he was ch[em]istry
 5    LUK:          [n-] no
 6    CHR: no ((raise in intonation))
 7    LUK: (0.3)/((points to self)) here
 8 →       (2.8)
 9    CHR: oh (1.2) was it chemistry his [um]
10    LUK:                               [no]
11    CHR: no
12    LUK: no
13 →       (3.4)
14    LUK: ((tapping self)) hyeouhrs (0.4)/((tapping))
15    CHR: oh it could- not engineerin[g
16    LUK:                           [y]es yes
```

On lines 1 and 2, Chris assesses that Luke's former colleagues was "slimy", while also making a claim that the college used to work "in there", meaning the Chemistry Department. Luke does not immediately respond leading to a 1.1 second silence before Chris queries his claim, "he was chemistry" (line 4), treating the silence as demonstrating that there is some trouble with his assertion. Luke then rejects the department Chris has attributed to the former colleague with a "no" (line 5) but does not provide any clarification. Following this, Chris repeats Luke's "no" with raising intonation indicating an other-initiation of repair (line 6). Luke then provides the previously omitted clarification through pointing to himself and saying "here" with turn-final intonation on line 7. Luke ends his gesture and gazes at Chris during the 2.8 second silence that follows (line 8).

Chris then responds with a change of state token "oh" but then begins to repeat his query about "was it chemistry" on line 9. This is overlapped by a further "no" from Luke on line 5, which again Chris repeats (line 11), further initiating repair. Luke once reconfirms his prior response with a more emphatic "no", (line 12). 3.4 seconds of silence then elapses, suggesting further trouble, before Luke continues his prior turn on line 14 by tapping himself and saying "hyourhrs". Chris treats this as Luke indicating that the "slimy" professor worked in the same department as Luke used to: "engineering" (line

15).

The initial 1.1 second silence on line 3 is treated by Chris as implying trouble that linked to the factual accuracy of the statement rather that with his assessment of the colleague as "slimy". This demonstrates how the participants are able to identify when a silence indicates trouble with the factual information in a prior turn rather than their interlocutors alignment with what was just said.

The long silences that occur on lines 8 and 13 occur after turns produced by Luke which do not supply the full repair required at these points within the talk, primarily the name of the department that "slimy" professor worked in. At the ends of both of these turns, Luke uses turn-final intonation, ends the gestures he is producing, and then gazes at Chris during the silences. These features suggest Luke has ended his turn and is inviting a candidate suggestion from Chris, thus identifying that the silences now belong to Chris. Chris appears to respond to the first silence by searching for a candidate solution to the repair, as his gaze turns to the distance and he shows a thinking face. This displays his attempts to resolve the trouble in Luke's talk, as is later evidenced by his proffered a candidate interpretation of Luke's turn (line 9).

Luke, rejects this candidate solution but again does not provide any further clarification or turn-holding features to suggest any upcoming talk. During the silence of 3.4 seconds on line 13, where Luke once again gazes at Chris, Chris is presenting a thinking face and looking away from Luke. Similarly to the CPs' reactions in Section 5.2.1, Luke treats this as Chris showing difficulty as shown by his prompting Chris with a near-repeat "hyeouhrs" of his self-repair "here" on line 7. This also provides evidence that the prolonged silences have been a result of Luke's difficulty in producing his turns without Chris' assistance.

The delay in progressivity arises here due to Chris' inaccurate knowledge and limited epistemic rights to this topic information. As such, it is necessary for Luke to undertake further interactional work in order progress towards reattaining intersubjectivity. Following Luke's prompt, Chris offers another candidate other-repair on line 15. This shows that he is treating Luke's gesturing to himself and his "here/hyeouhrs" to mean the department that Luke previously worked in, "engineering". Luke then finally closes the repair by confirming this candidate solution. This extract shows then that

silences are used by PWA to invite the CP to produce a candidate solution, while also allowing the CP to displaying their attempt to resolve the trouble that arises from attempting to complete the PWA's turn with limited information available to them.

Extract 35 again shows how silences are used by PWA to invite CP to offer a candidate repair and as time to identify potential candidate solutions by the CP in instances in which they have limited epistemic knowledge on what the PWA is saying. One issue shown in this extract, is that the trouble source is not always correctly identified by the CP, which then results in further misunderstandings that have to be resolved. In this extract, Angelica (PWA) is pointing to Edward's settee on which a blue blanket shaped like a mermaid's tail is laid. Angelica is asking what or whose the blanket is, but Edward (CP) misidentifies the object Angelica is referring to.

(35) 10AE-01-018-Mermaid'sTail

```
 1    ANG:  [alwses sis this (1.1) ((hiccups))
 2    ANG:  [((taps EDW on the arm and points at something in living
 3         room))
 4    EDW: oops
 5 →       (0.9)/((EDW turns round to where ANG points))
 6    ANG: wis (0.3) sith
 7 →       (0.6)/((EDW looks where ANG is pointing))
 8    EDW: the- the settee you wanna lie down
 9    ANG: oh- oh- (0.2) no- (0.2) tch. <(w:h::oo) is THAT>
10 →       (0.6)
11    EDW: what that blue thing
12    ANG: wehs
13    EDW: that's er Kate's me- mermaid tail
```

Angelica commences the sequence by gesturing towards something on the sofa and asking what it is (lines 1-3). Angelica uses the demonstrative pronoun "this" (line 1) while pointing to identify the referent she is querying. Edward (CP) turns to look where Angelica is pointing, but does not respond, other than to say "oops" in relation to Angelica hiccuping (lines 3 to 4). 900 ms of silence follows while Edward looks for for the referent Angelica has identified (line 5). Angelica then self-initiates repair during the transition space by repeating her initial question, "wis (0.3) sith" (line 6). There is a further silence of 600 ms in which Edward looks where Angelica is pointing, again appearing to physically search for the referent (line 7). He then offers a candidate repair, "the settee you wanna lie down" (line 8), which Angelica rejects before repeating her query again "(w:h::oo) is THAT" (line 9). 600 ms again follows while Edward

looks for the item Angelica is referring to (line 10). Edward's then repairs Angelica's demonstrative pronoun "that", to the candidate "blue thing" (line 11), which Angelica accepts with a "wehs", before Edward finally responds to her question, "that's er Kate's me- mermaid tail" (line 13).

Angelica treats the 900 ms silence and absence of response from Edward on line 5 as showing trouble with her query as shown by her self-initiation of repair (line 6). This displays that she is treating Edward's silence as a lack of understanding of her question rather than the indicated referent being unclear. This silence then is not part of Angelica's turn but is instead Edward's, showing the presence of trouble in the form of his lack of understanding.

After Angelica repeats her query on line 6, the following 600 ms silence on line 7 again belongs to Edward. His subsequent turn on line 8 shows that this silence was due to Edward trying to identify both what Angelica is pointing to and what she is asking him. This is evidenced by his turn which is a candidate repair of Angelica's own, demonstrating Edward's interpretation of the action Angelica is attempting to produce as her wanting to "lie down" on the settee, rather than asking about an object on it. Angelica rejects this candidate on line 9 and attempts an other-initiated, self-repair of the referent. She points again and repeats her question with increased emphasis and volume, and repairs her initial "this" to "that" by associating the sofa with "this" and the blanket with "that", deictically distinguishing the two referents. She then turns back to Edward.

This turn, once again, is followed by a 600 ms silence in which Edward looks for the referent before he provides a candidate repair to Angelica's self-repair, identifying the item Angelica is referring to as the "blue thing" in order to check the referent Angelica is asking about (line 11). Angelica subsequently confirms this before Edward is able to close the repair sequence and answer Angelica's query. As with Extract 34, Angelica does not use turn-holding features and her use of gaze towards her interlocutor, disjointed speech and allowing silence promotes candidate repairs from Edward. Edward also uses the silences as time to identify the referent Angelica is indicating to in her talk and through gesture, showing that CP's also make use of silences in repair sequences as opportunities to attempt to resolve trouble with intersubjectivity.

Sections 5.2.1 and 5.2.2 have shown that when PWA are unable to complete repair that is initiated by their CP, PWA use silence, gaze and perturbations within their speech to demonstrate their difficulty with the completion. Within PWA's turns during these forms of repair, turn-holding features are absent which suggests the PWA's passing on the repair attempt when one is required. These features are often seen to successfully recruit the CP into the repair sequence and gain their assistance via candidate solutions to the repair within these collections, though in a some of the cases in these collections, this results in the CP dictating the trajectory of the talk and controlling the action in the PWA's turn. CPs were again shown to allow silence before initiating the repair and move from weaker to stronger forms of repair throughout the sequence as their understanding of the trouble source turn develops.

5.3 Silence in Word Searches

This section analyses word searches resolved by PWA (Section 5.3.1), by CP (Section 5.3.2) and jointly (Section 5.3.3). Section 5.3.1 shows how PWA use turn-holding features to account for silences in their talk and display progression of the talk using vocal and gestural features which limit the silences in their turns. Section 5.3.2 then demonstrates how PWA and CP are able to identify suitable silence in which to offer a candidate search solution, and PWA can make use of silences plus gaze to invite their CP into the search. Finally Section 5.3.3 displays how following silences where the PWA shows difficulty with the completion of a search, the CP will sometimes male use of the prolonged and repeated silences to offer a prompt that will assist the PWA in finding the target word.

5.3.1 Self-Repaired Word Searches

In this section, turn-holding features examined in Section 4.2.1 are shown to be used during self-directed word searches to account for silences that are present during the search, and are treated as such by CPs, even through long silences. When a lack of turn-holding signals are used, CPs may interrupt the silences in order to display their

understanding in a way that attempts to progress the talk past the search. Silence is shown to be used as a space to provide iconic gestures (McNeill, 1992) as substitutes for the sought after word. Silences are also allowed by PWA as a way to confirm the CP's understanding of a circumlocution or substitution, demonstrating PWA's awareness of a failed search leaving the talk vulnerable to misunderstanding should the PWA's turn be unclear to the CP.

Extract 36 demonstrates that completion of a word search is not always necessary. Intersubjectivity may be maintained through the use of gestures during silence, followed by substitution of the sought after lexical item for a nonspecific term. In this extract, Dan (PWA) and Sarah (CP) are discussing three cats that visit their garden and identifying which ones each of them have seen. Dan is detailing the characteristics of each cat, when he enters into a word search for the noun "tag" or "collar".

(36) 05DS-01-007-Cats

```
1 →  DAN: but it's got the: [(0.3) thing on
2 →                          [((gesturing to neck
3 →       (1.7)/((DAN pauses gesture to neck looks to SAR, SAR nods))
4    DAN: er and the other one (0.1) next door is the er
5 →        [(0.5)]
6 →        [((gestures a round shape))]
7    DAN: fluffy one
8         (0.2)
9    SAR: ah right
```

On line 1, Dan is explaining that one of the cats has a tag or a collar on. Part way through this turn there is a 300 ms silence during which Dan gesture towards his neck, appearing to identify the tag on a cat's collar (figure 5.1). Dan's word search is signalled by his prolonging the article, "the", delaying the forward movement of the turn. Following this gesture, Dan fails to retrieve the sought after word and used the noun "thing" as a placeholder, completing his turn but continues gesturing. After this he gazes towards Sarah during a 1.7 second silence (line 3). Sarah nods at Dan during this silence and he continues his explanation of the cats on line 4. Dan details that one of the other cats is from next door and is fluffy, using a gesture representing the word "fluffy" before retrieving the word and finishing his turn

Dan's brief mid-turn silence on line 1 shows his use of silence and gesture to represent the word he is searching for. Dan fails to retrieve the word "tag" and instead

Figure 5.1: Video still of cat's collar/tag gesture

substitutes the non-specific noun "thing" for the sought after word. His iconic gesture serves to identify to Sarah the intended referent without Dan having to produce it, while "thing" acts as a placeholder to allow Dan to complete his turn syntactically. Through using the silence, gesture and substitution in this way, it bypasses the need for Dan to complete the word search allowing the progressivity of the interaction to remain uninterrupted by a repair sequence.

Dan's gesture continues into the 1.7 second silence on line 3. During this silence, Dan pauses his gesture while gazing towards at Sarah who briefly nods, displaying understanding. As such, this silence is being used by Dan to check whether inter-subjectivity has been maintained by his use of gesture and substitution. Pausing the gesture without dropping his arm further enables Dan to hold his turn over the 1.7 second silence, as it allows Sarah conditional entry through to provide a minimal display of understanding while indicating that Dan's turn is incomplete. When Sarah does not identify any trouble with Dan's turn he continues his explanation. Dan then uses this approach a second time on line 5 in which he commences a search, and uses an iconic gesture within the silence to represent the sought for word (figure 5.2). This time his is able to retrieve the sought for lexical item of "fluffy" following his gesture. This extract then shows that silence and gesture is useful during a word search as it can aid word retrieval, hold the PWA's turn and provide an opportunity space for the CP to produce

Figure 5.2: Video still of fluffy gesture

a minimal display of understanding. Use of iconic representation of a gesture during a silence can also allow the PWA can continue their turn without retrieving the troubled lexical item. This is often seen throughout the collection of word search extracts.

Extract 37 shows that CPs allow silences to prolong when a PWA's word search is signalled as being self-directed. In this extract, Antony (PWA) is discussing which teams might play each other in upcoming rugby matches. He has been listing teams when, on lines 2 to 3, he enters into a word search to recall the proper noun "Luctonians".

(37) 01AY-01-001-Luctonians

```
 1    ANT: yeah an- and Scunthorpe are coming up I think (0.1) at the
 2         moment anyway (0.7) .h a:nd what's the te:am ne:ar th-
 3 →       (0.8)
 4         Wales
 5 →       (1.1)
 6         .t er::m what's it called
 7 → ANT: (1.1)/((draws "L" on table))
 8         Luh- Lucdonians=
 9    YAS: =Luconians
10    ANT: Luctonians the- th- they might be in the play-off as well
```

Antony begins searching for the name of the team with the prolonged coordinating conjunction "a:nd" (line 2), indicating that the upcoming turn is linked to the talk before his 700 ms silence. His search is constructed as a question, "what's the te:am ne:ar th-" though his gaze is not directed towards Yasmin. Instead, he looks out to

the distance while maintaining a thinking-face, indicating self-talk (figure 5.3). This suggests that, Antony's search is self-directed and he is not inviting co-participation at this point.

Figure 5.3: Video still of Antony's thinking face

Yasmin throughout the search, maintains her gaze at Antony, displaying her orientation to the search as an ongoing activity and leaving silences unfilled. Antony provides a description of lexical item he is searching, identifying the referent as a "team" while also later providing a location, "Wales" (line 4). Antony continues the search on line 6 by filling the pause with and elongated "erm" and producing further question, "what's it called", which again appears self-directed as his gaze is maintained towards the distance. This converts the 1.1 second inter-turn silence on line 5 after "Wales" to an intra-turn silence, further implying that Antony is attempting to complete the search without assistance.

During the subsequent 1.1 second silence on line 7, Antony produces a gesture by drawing an "L" on the table between them, which Yasmin watches. This gesture represents the lexical item that is being sought and enables Antony to finally retrieve the pronoun "Luctonians". However, he cuts off his initial retrieval before repeating it and concluding the cut-off word with a slight mispronunciation. Yasmin then provides a late candidate other-repair of the sought for word on line 9 after Antony has resolved the search, ended his thinking-face, and returned his gaze to her on line 8. Yasmin

appears to leave the silences in this extract unfilled due to Antony's signals that his search is self-directed and hence hold his turn. This shows that CPs can respect PWA's indications that a search is self-directed and not offer a candidate solution or take a turn even through prolonged silences.

Extract 38 displays how the production of a sought for word can be treated as unnecessary for the maintenance of intersubjectivity by the CP. PWA's silences during word searches which lack turn-holding features can be used by the CP as spaces in which to demonstrate this. Dan (PWA) and Sarah (CP) are looking at housing properties online. Sarah views one that is listed as a commercial property (line 1) and Dan suggests it is possible to convert it to a residential property, but has difficulty finding the word on line 3.

(38) 05DS-02-010-HouseBits

```
1    SAR: ah it's commercial that one
2         (1.3)
3    DAN: yeah but could turn it into (0.6) tch.
4         (0.5)
5    SAR: yeah (0.4) you could yeah
6         (0.6)
7    DAN: house bits
8    SAR: you could
```

Dan pauses mid-turn for 600 ms on line 3, he then tuts and there is a further apparent 500 ms mid-turn silence from Dan on line 4. Sarah takes a turn during this silence, "yeah (0.4) you could yeah" (line 5) apparently agreeing with Dan's unfinished turn. This is followed by a further 600 ms silence before Dan completes his turn on line 7. Sarah then reiterates her agreement with Dan's completed utterance with "you could" on line 8.

During the silence on line 4, there are minimal signals that Dan will complete his turn. Both are gazing at the tablet Sarah is using to browse the housing website rather than orienting to each other, so any facial or gestural turn-holding features used go unnoticed. Dan signals difficulty with his unfinished turn via the silences and the 'tut' vocalisation (line 3) which displays frustration, perhaps at his failure to retrieve the word. As such, Sarah is able to treat the silence as a possible TRP and assists Dan by bypassing his trouble by responding to Dan's turn before he completes it with "yeah

(0.4) you could yeah" (line 5). This agreement displays that she has treated Dan's turn as communicatively adequate for her to understand the action within the turn. Rather than assisting with the search, Sarah's agreement shows that she is able to project what Dan is going to suggest, using the content present in Dan's turn and the local context of the interaction. Through doing this she also dismisses Dan's word search, which can imply that he is not capable of retrieving the sought for term and thus a less competent communicator (R. Wilkinson, 2007).

However, Dan continues and subsequently produces a term that is semantically related to "residential"; "house bits". The completion of the search reinforces his competency as a communicator as it displays his ability to retrieve the sought after word. This extract then demonstrates how the PWA's absence of turn-holding features to account for the presence silence and a display of difficulty with turn completion can lead to CPs treating the silence as a possible TRP and producing a turn before the PWA has completed their own.

These extracts have shown that PWA can signal to their CP which silences are their own intra-turn silences in which they are undertaking a word search. CPs can also identify when PWA are having difficulty with their talk and determine which silences may be appropriate for taking a turn in to assist the PWA. Where the possible content of the word search is unknown to the CP, rather than allowing silence, CP's can assist PWA to repair their talk through other means which helps to promote the progressivity of the interaction and minimise silence.

5.3.2 Candidate Solutions to Word Searches

This section shows that when a speaker displays evidence of difficulty during a word search, both CPs and PWA are able to identify an appropriate silence in which to offer candidate solutions to assist with the search. This assistance is done in a way that passes the turn back to the initiator of the search, so that the content of the supplied candidate is treated as belonging to them. Speakers can also implicitly request assistance with a word search through the use of gaze directed towards their interlocutor during a silence, something with occurs often within the extract in this

collection.

Extract 39, shows how PWA can signal when their silences do and do not invite assistance from their CPs. In the following extract, Yasmin (CP) is asking Antony (PWA) about which teams won in recent rugby matches.

(39) 01AY-01-001-BeatMacclesfield

```
 1    YAS: who did they beat
 2         (0.9)
 3    ANT: .h erm:::
 4 →       (1.1)
 5         I can't remember the-
 6 →       (2.9)
 7         I can't remember.
 8         (0.3)
 9         er::m:
10         (0.3)
11    YAS: Leicester (0.1)
12    ANT: no
13         (0.4)
14    YAS: Macclesfield
15         (1.0)
16    ANT: Macclesfie- Macclesfield they beat Macclesfield yeah
17    YAS: oh (0.1) at Macclesfield
```

Yasmin asks "who did they beat", "they" being the team that Antony supports. Following a 900 ms silence, Antony produces an in-breath and an elongated filler "erm" (line 5), displaying that he is having difficulty with his response and has commenced a word search. 1.1 seconds of silence follows 4 after which Antony expresses that he "can't remember the-" (line 5), then a further 2.9 seconds of silence (line 6), before Antony repeats "I can't remember", this time with turn-final intonation. Antony displays further trouble and attempts to respond after 300 ms with another "er::m:" (line 9). Another 300 ms silence follows before Yasmin then offers a candidate response of "Leicester" on line 11. Antony rejects this candidate on line 12, and following another 400 ms silence, Yasmin produces a second candidate of "Macclesfield" on line 14. After a further 1.0 second silence, Antony confirms this candidate as the team name he was searching for (line 16).

Antony's verbal expression "I can't remember the-" (lines 5 and 7) suggests he is having difficulty retrieving the team name. He cuts off mid-clause with continuing level intonation, leaving the turn syntactically incomplete and maintaining his hold on the turn. During this line, and 1.1 second silence and 2.9 second silence on lines 4 and 6,

Antony maintains his gaze towards the distance and does not invite co-participation within the search, nor offer any information to support a candidate completion. This suggests that Antony has positioned this search as self-directed at this point and so the silences are accounted for as part of Antony doing searching. Yasmin maintains her gaze at Antony throughout these silence search, demonstrating her attention to the search as an ongoing activity.

The second production of "I can't remember." on line 7 contrasts with the first, as this second formulation is syntactically complete and said with turn-final intonation. This is followed by a further pause, a perturbation and another pause, signalling failed retrieval attempts. Yasmin, in response to this offers a candidate solution, showing she is treating these silences (lines 8 and 10) as Antony opening up the search for assistance with the team name. Both of Yasmin's candidate responses (lines 11 and 14) are produced with rising intonation, demonstrating their candidacy and need for Antony's approval, as well as Yasmin's treatment of as Antony as the K+ individual within the conversation. This is further reinforced when, following Antony's acceptance of the second candidate "Macclesfield", Yasmin produces a change of state token which receipts the retrieved words as belonging to Antony (line 17). Yasmin uses the silences as TRPs in which she can offer assistance to Antony, passing the turn back to him through her candidate responses.

Therefore, allowing further silence in this instance would not have been beneficial to the progressivity of the talk. Antony has displayed difficulty and allowed extended silences, showing he is unable to retrieve the sought after word and is stuck in his search. Yasmin, in response to this, assists by providing candidate solutions which reduces the communicative burden on Antony and allows the progressivity of the talk to resume.

It is not only CPs that are able to reduce the burden on their interlocutor when they are having difficulty completing a word search. Extract 40 shows how PWA treat CPs silences as spaces in which they might assist with a word search. Luke (PWA) and Chris (CP) are talking about where a football match final is going to be held. Chris is unable to recall the name of the stadium in Madrid where the football match will be played.

(40) 07LC-01-012-Bernabéu

```
 1    CHR: they a:re (0.8) they're holding it at erm
 2 →       (1.4)
 3         in Madrid
 4    LUK: yes
 5 →       (3.0)/((CHR displays thinking face))
 6    CHR:  [I'm not sure if it's at the:
 7          [((holds hand in front of mouth))
 8 →       (2.0)/((CHR still holding hand in front of mouth))
 9    LUK: arhmanah=
10    CHR: =no I don't think it's at the Bernabéu I think it's at the
11         erm (0.8) the other one (1.4) er Atlético Madrid
```

Chris' word search commences on line 1, "they're holding it at erm". The word search is signalled by the repair initiator "erm", accounting for and making the forthcoming 1.4 second pause on line 2 in Chris' talk relevant (Lerner, 2013). Thus, this suggests that the search is self-directed not requiring assistance from Luke. Following this Chris retrieves a hypernym "Madrid", a city name, rather than the name of the particular football stadium. The word search could be considered complete at this point. However, following Luke's display of understanding on line 4, Chris signals that his word search has not concluded as he returns to showing a thinking face during the 3.0 second silence that follows (line 5).

Chris begins to produce a new turn on line 6 but does not complete it again, prolonging the article "the:" prior to a 2.0 second silence (line 8). Luke then offers a candidate solution to Chris' word search, "arhmanah" (line 9), which Chris treats as an approximation of "Bernabéu" (line 11).[1] This candidate solution turns out to be incorrect and is rejected by Chris in the next turn, after which he completed the word search with "Atlético Madrid".[2]

After Chris produces "Madrid", Luke produces a container "yes" after which there is a 3.0 second silence. This silence on line 5 is an unsuitable location for a candidate repair because "Madrid" could have served as the sought for term and the search could have been concluded at this point. Luke only offers a candidate solution in a contextually appropriate place: when Chris produces more work displaying his uncertainty over the

[1] A partial name of a football stadium in Madrid.

[2] Thus, Luke's other-repair does work to prompt Chris into completing his word search retrieving "Atlético Madrid", the name of the football team associated with the sought after stadium, the Wanda Metropolitano.

sought after term. This occurs on line 6 when Chris verbalises his uncertainty, stating he is "not sure if it's at the:", cutting off mid-turn and holding his hand in front of his mouth. This signals the search has so far been unsuccessful and is still underway with some difficulty.

During the 2.0 silence on line 8 Chris does not have mutual gaze with Luke and he continues to holds his hand in front of his mouth during this silence, as though holding back his talk. Chris also does not make use of turn-holding features at this point. Luke responds to these signals by treating Chris as facing difficulty with finding the precise referent and so offers a candidate solution of "arhmanah" (line 9). Luke's offering of a candidate repair shows that Luke is treating the silence as one that it is suitable for either participant to resolve and demonstrates that PWA are able to recognise searching silences by the CP and assist with word searches. Silence provides an opportunity for this to occur.

While the above two extracts have shown how participants offer candidate completions of word searches when their interlocutor displays they are having difficulty, Extract 41 shows how PWA can more openly request assistance with a word search through the use of gaze direction during a silence. In this extract, Dan (PWA) and Sarah (CP), have recently moved into a new house and are talking about redecorating and organising the storage of their best cutlery.

(41) 05DS-01-007-Housewarming

```
1    SAR: you never know (0.4) pt. (0.5) might do a dinner party
2         (0.8)
3    DAN: yeah we need er:a:
4 →       (1.9)/((looks to Sarah))
5    SAR: housewarming
6    DAN: a milehelpowarm=
7    SAR: =yeah we'll have a housewarming (0.5) when it's finished
```

Sarah suggests that the cutlery might need to be easily accessible in case they "do a dinner party" (line 1). On line 3, Dan agrees with this suggestion "yeah we need er: a". As with other examples, Dan is able to produce the determiner of the noun phase "a" but does not produce the head of the phrase prior to a silence. Following this, Dan has enters into a word search, as demonstrated by his interrupted turn using the repair initiator "er" which displays trouble with his forthcoming talk and makes the

upcoming 1.9 second silence relevant. During this silence (line 4), Dan turns his gaze towards Sarah.

Sarah treats this move as an invitation to co-participate within the search, as demonstrated by her production of a candidate solution, "housewarming", on line 5 when Dan's gaze meets hers. Rather than confirming Sarah's candidate through a "yes" token, Dan attempts to repeat Sarah's repair, "a milehelpowarm" (line 6), linking it to his prior turn through repeating the determiner "a" and treating the candidate as his own turn. Although, Dan fails to accurately repeat "housewarming", producing only an approximation of the referent "milehelpowarm" (line 6), this further supports the claim that Dan invited Sarah to assist in the search.

Sarah also appears to treat repair as though it was produced by Dan through agreeing with the suggestion once the repair sequence is concluded, while also covertly producing an additional other-repair of Dan's incorrect pronunciation, like Chris does for Luke in Extract 40.

Each of the extracts in this section have shown how a silence plus a transfer of gaze to the CP works to recruit the CP's assistance with the word search. The next section demonstrates how that assistance and the use of silences can differ when the CPs only offer a prompt rather than a candidate search term.

5.3.3 Participatory Word Searches

Section 5.3.3 shows that when PWA display difficulty with, or failure to complete, a word search, silences can become prolonged. In these instances, rather than offering a candidate solution as the CPs in Section 5.3.2 did, the CPs instead sometimes produce prompts to assist the PWA to completion. This prompting can be done in a way that promotes or impedes the progressivity of the interaction depending on (the approach of the CP and) whether the PWA has requested assistance from the CP and allows the PWA to complete the search themselves.

Extract 42 shows how CP, rather than producing an candidate completion during an extended silence when the PWA is having difficulty with a word search, the CP can offer a prompt that displays recognition of the sought-for word. This acts as a cue that

helps the PWA in resolving the search. James (PWA) and Molly (CP) are planning a trip at the weekend that involves them driving a long distance. Molly asks "where shall we stop" on their upcoming trip (line 1).

(42) 09JM-01-017-North Cave

```
 1    MOL: where shall we stop
 2 →       (0.7)/((JAM gazes away from MOL))
 3    JAM: .h um::
 4 →       (0.7)
 5    JAM: um m m m
 6 →       (2.1)
 7         er:m erm erm
 8 →       (0.6)/((JAM starts to smile))
 9    MOL: which- which of the places do you fancy stopping at that we
10         normally stop at
11         (0.7)
12    JAM: er er North Cave
```

James' response is delayed initially by 700 ms (line 2), during which he turns away from Molly. He then takes an in-breath and produces a filler (line 3) before halting again for another 700 ms (line 4). He produces further "ums" on line 5, prior to a 2.1 second silence (line 6). James then produces more fillers "er:m erm erm" before one more 600 ms silence during which he begins to smile. At this point, Molly takes a turn re-asking her question, "which of the places do you fancy stopping at that we normally stop at" on line 10. A final 700 ms silence follows before James completes his word search and replies "North Cave" (line 12).

The multiple fillers James produces through lines 3 to 7 suggest that he is committed to answering Molly, but also that he is having difficulty producing a location. These repair initiators and fillers, alongside the shifting of his gaze away from Molly also act to hold his turn across the silences on lines 2, 4 and 6 while he undertakes a word search.[3] Throughout most of the silences, excluding line 6 while his gaze is still withdrawn, James does not allow them to progress beyond 700 ms, which is the point when other-repair typically occurs (Kendrick, 2015). However, unlike Antony in Extract 37, James does not display any progression during his search, nor any indication that he has been able to retrieve even an incorrect search solution.

[3]They act as displays of vocal thinking which aid James in holding his turn. Displays of vocal thinking are discussed further in Section 6.1.2.

In the final 600 ms marked silence (line 8), James begins to smile. This smile indicates that James is treating his failure to complete the word search as humorous, as Emma does in Extract 31. This marks the search as a failure and displays an affective stance towards his communicative failure. Molly does not align with this display of humour, instead using the prompt to assist James in completing the search (line 10). Molly's prompt repeats her interrogative but narrows the search field as being a place that they have been to before.[4] This prompt appears to have been initiated as a result of James' lack of search progression and his smile commencement in the silence prior to Molly's prompt.

Following this, James is able to complete the word search by producing a location (line 12). The simplification of Molly's query thereby assists James in his lexical retrieval, reducing the linguistic burden in the same way that reduction of open-format questions and simplification of trouble-source turns can help PWA in resolving trouble (Barnes, 2016). Molly only offers this prompt after James smiles, signalling his failed search. This indicates that CP appear to monitor the silences for indications that the PWA requires assistance, which is an approach which promotes the progressivity of the interaction. However, there are alternate approaches that encourage the PWA to provide a response which instead impede the progressivity and result in an increased number of silences, as demonstrated in the Extract 43.

Extract 43 shows how CPs can intentionally impede the progressivity of the interaction in order to assist and encourage the PWA to complete a word search. Silences become appropriate for the interaction and are used to show trouble and provide space for the PWA and CP to produce a hint for the sought after word. In this extract Chris (CP) asks what his father Luke (PWA) had to eat when he went to an Italian restaurant at the weekend.

(43) 07LC-02-013-Mussels

```
1    CHR: did you have er what did you have at er Zizzi's
2         (0.6)
```

[4]Molly's initial query was open in terms of potential places that would be acceptable as a response. Amending this to "that we normally stop at" narrows the search field to 'places they have stopped at together in the past'.

```
 3    CHR: at the weekend
 4 →  LUK: (2.8)/((attempts to speak  then makes round shape with thumb
 5         and forefinger))
 6    LUK: ((making round shape)) little one (0.2) there there
 7 →       (0.6)/((shows shape to CHR))
 8    CHR: but what are they called
 9 →  LUK: (1.3)/((shakes head))
10 →  CHR: (1.5)/((points to bicep muscle))
11    LUK: myes
12    CHR: what are they called
13         (1.3)
14    LUK: m:ussels
15    CHR: good oh yeah mussels well done
16    LUK: yeah
17    CHR: mussels
```

Chris asks what Luke had to eat at the restaurant on line 1. When Luke does not reply for 600 ms, Chris produces an increment, "at the weekend" (line 3) specifying when Chris is asking about. In the following 2.8 second silence on lines 4 to 5, Luke raises his finger, opens his mouth and moves his head forward as though attempting to speak, before switching to producing a gesture by forming a round shape with his thumb and forefinger (figure 5.4). As he is producing this gesture, Luke says "little one" and verbally indicates the gesture, "there there" on line 6. In the next 600 ms silence, Luke moves his hand closer to Chris, showing him the gesture more clearly (figure 5.5). Chris initiates repair by asking Luke "what are they called" (line 8). Luke responds by shaking his head in the next 1.3 second silence (line 9) and Chris gestures by pointing to his bicep muscle during the continuing 1.5 seconds of silence (line 10). Luke then says "myes", before Chris repeats his other-initiation of repair "what are they called" on line 12. Luke then, following a final 1.3 seconds of silence (line 13) produces the sought-after term "m:ussels" (line 14) and both participants celebrate this production on lines 15 to 17.

Throughout this extract, Luke is having difficulty finding the word "mussels". This is demonstrated by his initial non-response of 600 ms silence on line 2 although, initially it is unclear what the delay in response result from. Chris' increment "at the weekend" converts the silence to his own intra-turn silence, and allows more time for Luke to form a response. Luke, however, is still having word-finding or word production difficulties, as shown by the 2.8 second silence on line 4. After Luke's attempt to speak fails, he tries to answer by switching to producing a gestural representation of the sough-after

Figure 5.4: Video still of self-directed mussels gesture

word "mussels" during the silence, similar to Dan's substitution in Extract 36. Luke subsequently produces a circumlocution through describing the food as "little one" (line 6) which verbally indicates the gesture as he moves it towards Luke.

Figure 5.5: Video still of CP-directed mussels gesture

This movement of this gesture suggests that, initially, the search was self-directed and the gesture may have been an attempt at Luke trying to help himself find or produce the word. Thus, the silence serves here as a search space where Luke can

show his attempts at production/retrieval (discussed further in Chapter 6). Luke's subsequent physical turn to Chris to more openly show him the "mussels" gesture and the 600 ms silence 7, passes the turn back to Chris and invite candidate completion by recruiting Chris to find the word for him.

However, Chris does not align with this action. Rather than producing a candidate response to Luke's gesture, he pursues the sought for term from Luke by providing an other-initiation of repair "but what are they called" (line 8). In reply, Luke shakes his head in the 1.3 second silence (line 9), further displaying his inability to produce the term and to take a verbal turn. It also again passes the turn to Chris to produce the sought for word, a candidate solution, or to continue the talk with the word search having failed.

Chris instead prolongs the silence (line 10) by providing a hint through using an deictic gesture that indicates his "muscle", suggesting a homophonous word in an effort to aid Luke's lexical retrieval. Luke instead treats this hint as a candidate response, confirming it as accurate on line 11, "myes", further relinquishing the right to self-repair and treating the word search as solved so that the interaction can resume. Chris once again does not comply with this approach, instead producing another repair initiation, "what are they called" (line 12). Luke pauses for 1.3 seconds, then then finally completes the word search by producing "m:ussels". The celebration of the completion of the word search on line lines 15 to 17 then closes the repair sequence.

Chris' approach to gaining a response from Luke impedes the progressivity of the talk even more than the word search would otherwise have done. It allows the silences to progress uninterrupted and increases the interactional burden on the PWA by forcing Luke to complete the word search when he has shown that he is unable to do so. Unlike in Extract 42 in which Molly's hinting works towards the forwards momentum of the talk, Chris' approach works to repair only the utterance, rather than the progressivity of the interaction.

However, this approach does also allows the PWA to complete the word search themselves, as is preferred in typical interaction. Therefore, allowing the talk to be impeded and silences to prolong can be beneficial when it enables the PWA to achieve what they may not otherwise have done should the CP complete the word search for

them. Throughout the extract the silences again demonstrate trouble, but are also used as spaces to produce gestures when word-production fails, or when hints are required. The silences are allowed to prolong only up until the point where the gestures within them end. This shows that silences are an essential aspect of communication between PWA and CPs.

Similarly to Extract 43, Extract 44 again shows how a CP can use hints to prompt the PWA into successfully completing a word search, in a way that does not necessarily promote the progressivity of the interaction but does mark an interactional achievement for the PWA. The silences again are used to display trouble and the occurrence of a word search. In Extract 44, Antony (PWA) and Yasmin (CP) are talking about what they are having to eat later.

(44) Salad Cream

```
1    YAS: and then wha- and then you- on your salad you have
2 →  ANT: (0.3) .h erm (0.6)
3    YAS: ((mimes holding a bottle and squeezing while making spurting
4         noise))
5    ANT: oh no (0.3) cream (0.3) erm ((withdraws gaze)) salad (0.2)
6    YAS:  [°salad°]
7    ANT:  [sa- sa-] (0.1) salad cream
8    YAS: yeah (0.6) heah
9    ANT: .h yeah I have salad cream all the time (0.6) it's nice
```

Yasmin initially repairs her query from what may have been the interrogative "what do you have on your salad" to the declarative "on your salad you have". This suggests that Yasmin is asking a known answer question for which she has a specific lexical item in mind as a response. This serves to limit the possible outcomes of the answer to one which is known by both participants. Following Yasmin's question, there is a 300 ms silence, then Antony produces an audible in-breath and hesitation marker "erm", followed by another silence of 600 ms (line 2).

After the 600 ms silence, Yasmin produces a gestural and vocal hint that represents squirting a bottle salad cream (line 4). This suggests that Yasmin is treating Antony's turn on line 2 as displaying trouble that requires assistance. As the answer to her question appears to be knowingly shared by both of them, providing the sought for word would defeat the purpose of the known-answer question; to get Antony to talk. Therefore, a different way in which Yasmin can assist is to produce a hint, as Chris

does for Luke in Extract 43. From this hint, Antony is able to partially retrieve the referent "oh no (0.3) cream (0.3) erm salad (0.2)" (line 5). At this point Antony's gaze, which has until now been towards the middle distance, is withdrawn further downwards and towards himself. He also lowers his eyebrows further into a "thinking face" indicating that he does not require assistance and that the silences are being used not as opportunity spaces for co-participation, but as space for Antony to find the answer to the question. This is how Yasmin treats the silence as she does not provide further assistance during Antony's silences on line 5.

Once Antony has retrieved the two part lexical phrase but with the wrong syntax, Yasmin again quietly assists by repeating the correct first word "salad" (line 6), in overlap with Antony who repeats the initial syllable "sa-" until he is clear of the overlap (line 7). This maintains his hold on the turn, avoiding silence and showing his awareness of the risk of turn-loss through the competing overlap, and allows him to complete the production of the word himself. This works as he subsequently produces the full term "salad cream" on line 7.

Antony's retrieval is cooperatively constructed. Both participants work to minimise the silences which shows that lexical retrieval can occur without prolonged silences. Yasmin's hinting assists in the retrieval, as Chris' did in Extract 43. However, in this extract, Antony displays more intent to self-complete the word search than Luke does. Antony does not attempt to recruit his CP into the search and at points actively withdraws from assistance when it is offered by Yasmin. However, Yasmin's assistance does also serve to prevent long silences and her initial gestural hint helps with Antony's retrieval and thus the progression of the search. In contrast, Chris's approach impeded the progressivity because Luke indicated that other-completion would have been welcome within his search.

PWA can use silence and gesture to promote a candidate response from their CP; however, the CP does not have to respond to this by providing the sought after help. Instead they may prompt and encourage the PWA to complete the search themselves rather than offering a candidate response. In both approaches, which appear to occur equally across the collection, the CP works to help the PWA to produce the sought after word themselves, which reaffirms the PWA's image as a competent communicator. The

CPs use of prompting helps to minimise silences and aids the PWA's lexical retrieval.

This section has shown that self-completion of a word search is a complex interactional feat for PWA. Failure to complete, however, does not mean a complete breakdown in intersubjectivity. Silences can be used in multiple ways such as to offer a gesture as a substitute, check understanding, or as a space for the hearer to offer assistance through a candidate response or prompting. Turn-holding features are important for signalling the speakers intention to continue during the word search, while displaying difficulty can implicitly request assistance from the hearer.

5.4 Chapter Summary

This chapter has demonstrated that silences in PWA's self-repair occur mirror those of neurotypical repair, with PWA able to signal using silence and gaze when they require assistance with a repair or word search. PWA use turn-holding features to account for and hold the turn across silences when they are planning to self-complete the repair or a word search. PWA are also able to display the progression of a word search to their CP using a combination of silence, gesture, self-talk and turn-holding features. This chapter also demonstrated that PWA are treated by CPs as capable of producing self-repair, following the preference for self-repair in everyday interaction.

Finally, it showed that CPs may respond to requests for repair differently, allowing silences to promote talk from the PWA. When other-completion does occur, this is performed as a candidate completion which passes the turn back to the PWA, allowing them to accept or reject the candidate. This form of CP assistance reduces the presence of silence within the talk. When the CP only provides a prompt, after the PWA has implicitly requested assistance from their CP, the PWA has to resume the repair or the search and attempt to complete it themselves. This form of prompting prolongs the silences within the talk and requires further interactional work by the PWA that not all PWA are able to undertake.

Chapter 6, Silence in Doing Thinking, turns to analysing silences that occur with PWA's outward representations of internal mental processes, such as doing thinking.

Chapter 6

Silence in Doing Thinking

This chapter provides evidence that silence may occur as part of a purposeful, social representation of a mental process: doing thinking. This is not necessarily a legitimate display of actual thinking, but an enactment designed as a way to account for silences and claim them as PWA's own 'thinking' silences, making relevant the lack of talk.[1] The use of the verb 'doing' in this section reflects that the phenomenon under discussion is an embodied or vocal social practice that imparts communicative meaning and action to interlocutors' talk (Hofstetter, 2020).

Section 6.1 shows how displays of embodied and vocal thinking can be used to account for the presence of silences within PWA's talk by representing that the PWA is doing thinking during those silences. Section 6.2 then demonstrates how PWA use silence prior to a to a potentially inapposite term and combine it with a display of humour in order to portray word selection, mitigate potential disaffiliative talk, and display an affective stance towards what is being said. Finally, Section 6.3 displays the relationship between PWA's silences and the change of state token "oh", demonstrating that silence is often present before PWA's displays of understanding as it allows PWA to show their comprehension of the information presented by the CP. When silence is absent before the change of state token, this is treated by the CP as only a claim of understanding rather than a display.

[1]This analysis does not claim to present an actual representation of what is occurring within a person's mind as this information is not visible within or provided by the data.

6.1 Silence in Embodied and Vocal Thinking

This section examines silences in which the PWA display (or claim) that they are doing thinking as a way to account for silences within their talk. Section 6.1.1 examines displays of embodied thinking; thinking as demonstrated by gaze gesture, and other body-related movements during silence. These embodied gestures fill the silences and display that these silences are used to do thinking. Section 6.1.2 then shows how lexical and vocal tokens are also utilised by PWA to display that they are doing thinking. These displays minimise silences and demonstrate that there will be further talk past the silence. These tokens relate to the turn-holding silences discussed in chapter 4, though the analysis here is more focused on how these features are used to represent 'doing thinking'.

6.1.1 Embodied Thinking

This section demonstrates how PWA display that they are doing thinking during a silence, using the embodied resources of gaze, gesture, and facial expressions. These displays are not necessarily an indication of the PWA actually thinking, but instead a way to claim the silences as their own and account for delays in further talk and are seen to occur regularly throughout all of the PWAs' talk.

Extract 45 shows how Angelica (PWA) uses hand gestures during silences as a representation of thinking to hold her turn prior to producing a response to a FPP. In this extract, Edward (CP) asks Angelica whether she has seen her friend Dawn recently.

(45) 10AE-01-18-SeenDawn

```
 1    EDW: you seen Dawn lately
 2         (5.2)
 3    ANG: .h (no reh/Dohwn)
 4         (0.4)
 5    EDW: you know Dawn Dawn and Rick Dawn (0.4)
 6    ANG: .hh oh
 7 →       (2.6)/((puts hand to forehead))
 8 →       (1.1)/((mutual gaze and ANG starts to make arm gesture))
 9 →       (4.2/((EDW resumes chopping, ANG lowers hand to work top,
10 →      palm sideways, fingers spread))
```

```
11    ANG  yeah
12         (0.4)
13    EDW: yes
14    ANG: yeh
```

Following Edward's query, there is an extended 5.2 second silence. Angelica then produces an in-breath, then a possible repeat of the name "Dawn" (line 3), "(no reh/Dohwn)". Edward treats this as a repair initiator and provides a more specific referent by referring to "Dawn" as part of a couple "Dawn and Rick Dawn" (line 5). Angelica receipts this repair with an "oh" on line 6, following which there is an extended silence that lasts a total of 7.9 seconds (lines 7 to 10).

During the initial 2.6 second silence on line 7, Angelica places her thumb and forefinger on the bridge of her nose with the rest of her hand covering her eyes and partially masking her mouth (figure 6.1). This displays her withdrawing from talk, showing she is unavailable for further conversation at present. It shows a movement from Angelica being externally oriented to the conversation, to being internally focused on producing a response. Her hand then shifts to her left temple, which still non-verbally indicates her head, presenting a display of thinking to Edward.

Figure 6.1: Video still of self-directed thinking gesture

Then, on line 8, Edward directs his gaze back to Angelica. As Edward raises his head, Angelica meets Edward's gaze and moves her arm forward from her temple to being raised mid-air between the two of them (figure 6.2). Edward does not say

anything and returns his gaze down to the vegetables he is chopping, showing that he is treating Angelica's gesture as a display that she is still holding her turn, with the silence accounted for by the displays of embodied thinking.

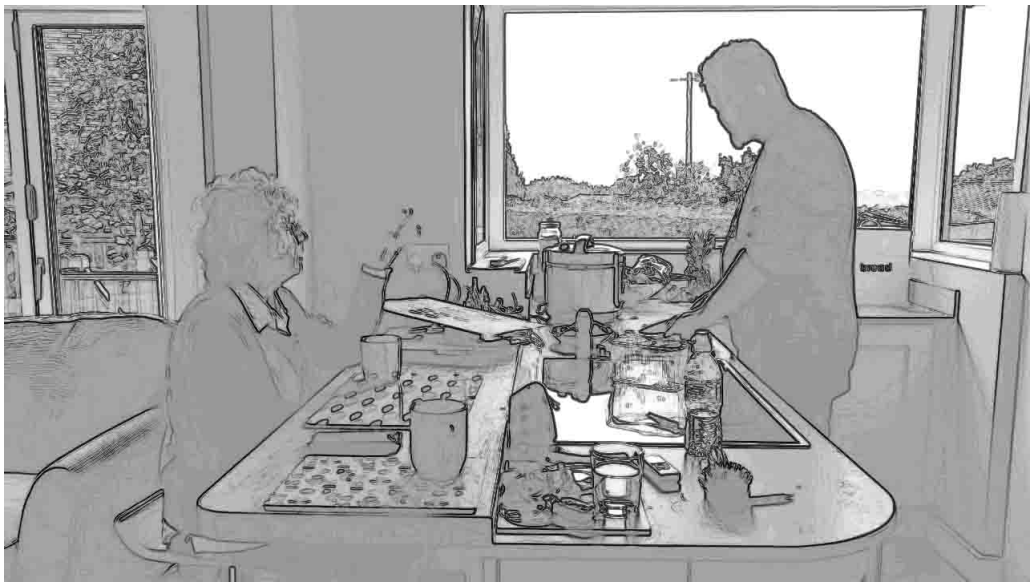

Figure 6.2: Video still of CP-directed thinking gesture

In the final 4.2 second silence (lines 9 to 10), Edward lowers his gaze again to the vegetables he is chopping and Angelica lowers her arm, keeping her palm sideways and fingers spread. While Angelica retracts her gesture following the loss of mutual gaze, she has not withdrawn it fully as her arm is still visibly tensed with her fingers spread. At the end of this silence, Angelica relaxes her hand, placing her palm face down. She then produces a "yeah" in response to Edward's query (line 11).

Angelica uses the gestures in lines 7 to 10 to hold her turn, which, when followed by her response to Edward's question, displays that the silence and gesture were a display of thinking during a silence. This display of thinking in response to a polar question that at minimum only anticipates a "yes" or "no" answer suggests that Angelica is having production issues and her eventual minimal response of "yeah" supports this. Absence of these gestures could imply that Angelica is stuck, having trouble responding. Even if this is the case, pausing her gesture mid-air displays that she is aware she is required to respond and that she is working on that response, her turn being unfinished.

Angelica's timing of the gesture to coincide with Edward returning his gaze to

Angelica's shows that her display of embodied thinking is directed towards Edward. Edward, during this show, has remained focused on chopping vegetables, gazing down rather than towards Angelica. The fact that he does not talk during this silence displays Edward's treatment of the silence as belonging to Angelica. The display of embodied thinking then allows Angelica to maintain hold of her turn and accounts for the silence and absence of her response that results from her production issues. The end of her gesture and production of her response coincide and end her display of thinking. Therefore, PWA can identify silences as thinking silences through the use of gesture and use this as a way to account for silences resulting from production issues.

Extract 46 also demonstrates how embodied thinking is used to account for silences and to hold PWA's turns. It also displays how embodied thinking can also be suggested not only through PWA's physical gestures, but also facial expressions during silences. In this extract, Chris (CP) and Luke (PWA) are discussing cricket. Chris asks Luke how many One Day International cricket matches have been played so far this season.

(46) 07LC-02-013-PlayedAlready

```
1 → CHR: and how many have they played already
2          (3.7)/((LUK thinking face then looks down and counts on
3 →        fingers))
4    LUK: th:- three
5          (0.4)
6    CHR: they've played three already
7    LUK: yes
```

Following Chris' query, there is a 3.7 second silence (line 3). During this, Luke produces a thinking face (M. H. Goodwin and C. Goodwin, 1986), looking away from Chris, up and to the right. This expression occurs at the start of the silence and is held until the response is provided, accounting for the silence as 'thinking' silence. Luke then looks down to his raised left hand which he is has raised with his fingers spread. Chris follows this move with his gaze but does not speak. Luke pauses, then moves his thumb and third finger together as though counting. This gesture supports his thinking face expression in holding his turn during the silence by producing a display of what he is trying to produce verbally: a number in response to Chris' query. As he moves his thumb and finger together he produces the beginning sound of "three" in an initial attempt at a response (line 4). Luke retries and completes the number "three", which

confirms his prior movement was related to counting as he has said the number his gesture indicated to; his third finger. Following this, Luke returns his gaze to Chris. He also moves his arm out to Chris slightly as though showing him the gesture. Chris treats this as the completing Luke's turn and responds while Luke ends his gesture by laying his arm down (line 6).

Luke's initial failure to complete the projected word suggests that he had difficulty in producing a response, resulting in the extended 3.7 second silence. Luke's turn demonstrates that the use of embodied thinking can account for silence in which there is difficulty retrieving or producing a word. Combining gesture with the withdrawal of gaze and displaying a thinking face helps to reinforce the PWA's commitment to completing their turn while holding the turn over a silence without needing to produce any verbal turn-holding features. The redirection of his gaze, like Angelica above, shows that there is some self-directed process occurring here, similar to the withdrawal of gaze to indicate the commencement of a self-directed word search (Tuomenoksa et al., 2016). Thus, PWA can signal the difficulty they may be facing in the production of a word, but also their commitment to doing so through claiming the silence as them doing embodied thinking.

In Extract 47, Antony's (PWA) thinking face again presents a visible demonstration of a PWA claiming to be doing. Within this extract Antony (PWA) and Yasmin (CP) are discussing extra time on a recent football match.

(47) 01AY-02-11-ExtraMinutes

```
1    YAS: so how many extra minutes did they have
2 →  ANT: (1.2)/((ANT thinking face))
3    ANT: about er::m (0.3) ((mouthing five six seven)) e:ight (0.3)
4 →       nine minutes
5    YAS: ↑nine↑
6    ANT: nine minutes
```

Yasmin asks "how many extra minutes" were provided at the end of the football match. In response, Antony displays thinking face during a 1.2 second silence (line 2). He then starts to respond "about er::m", followed by a further 300 ms silence, then mouths the numbers "five six seven". A further 300 ms silence then occurs before Antony finally produces a response of "e:ight (0.3) nine minutes" (line 4).

Antony's first display of embodied thinking is on line 2, during the 1.2 second silence in which an answer to Yasmin's question is a relevant response. A delay could suggest a lack of cooperation with Yasmin's action. However, Antony's eyebrow raise into a thinking face accounts for the silence by showing it is being used as space for Antony to think. His deep, visible in-breath also indicates that a response is forthcoming.

Yasmin remains attentive to Antony during this silence, displaying no signals of continuation or any pre-beginning behaviours. This shows that she is waiting for Antony's response following his display of embodied thinking. Antony then commences his turn, beginning with an "erm" token, using vocal thinking that suggests further talk past the following 300 ms beat of silence (vocal thinking is discussed further in Section 6.1.2). Antony then presents a further display of embodied thinking by mouthing the numbers "five, six, seven" which outwardly show he is preparing to provide a relevant answer to Yasmin's question and that he is claiming to be thinking about the correct answer. This counting, while demonstrating his progression with the search process, again suggests that he is having issues retrieving the correct number as with Luke in Extract 46.

After Antony completes his turn and answers Yasmin with "nine" (line 4), Yasmin responds to Antony's answer rather than addressing anything undertaken during the silences in Antony's turn. This shows Yasmin is treating Antony's facial expression and mouthing of words as a display of embodied thinking that accounts for the silences in his talk and for the production trouble he is having. Yasmin does not mark the silences or the display of thinking as containing something that is out of place or outside the topic of the talk. This shows that using thinking faces and facial expressions allow PWA the opportunity to take the time they need to respond without having that silence misinterpreted as, for example, displaying non-compliance with the prior turn. Furthermore, embodied thinking practices also allow PWA to show progression in their thinking process.

This section has shown that PWA use embodied thinking gestures, both gestural and facial to account for silences present within their talk. These displays assign the function of thinking to the silences and make the silences relevant for the PWA's turn,

while also holding their turn through the silence. These displays are not treated as accountable occurrences by the CP. Therefore, PWA have at their disposal tools to show when they require additional silences during their talk.

The next section examines PWA's vocal displays of thinking and how these are combined with embodied thinking practices as additional ways to hold the PWA's turn and account for silences.

6.1.2 Vocal Thinking

This section shows how PWA produce vocal displays of thinking to account for silences present in their talk.[2] Many of the extracts within this collection are accompanied by displays of embodied thinking and serve to display the PWA's commitment to producing a response as well as how that production is progressing, hence their use as turn-holding devices.

Extract 48 is an expansion of Extract 47. The continuation of this extract shows that a combination of vocal and embodied thinking features can be used in order to account for silences present in talk.

(48) 01AY-02-11-ExtraMinutes

```
 1    ANT: about er::m (0.3) ((mouthing five six seven)) eight (0.3)
 2         nine minutes
 3    YAS: ↑nine↑
 4    ANT: nine minutes (0.7) cos er obviously when you score
 5    YAS: yeah then there's another half a minute [yeah
 6    ANT:                                          [the-] the referee
 7         has a- a minute on that (0.8) so it was it was about that
 8 →       °five six seven° (0.9) e:ight (0.8) eight and half
 9         (0.3)
10    YAS: yeah
```

After Antony responds to Yasmin's query about extra time (line 2), Yasmin reacts with surprise, as shown by her repeat of Antony's response with raised pitch on line 3. Antony then begins to produce an explanation for the "nine minutes" 4, which Yasmin

[2]The term 'vocal thinking' is used here to distinguish the displays of thinking seen here from Hofstetter's (2021) description of verbal thinking, as instead of being a verbally accounting for the delay of a turn using mentalistic vocabulary, they instead involve filled pauses, lip-smacks, elongated sounds, and self-talk related to the production of an appropriate response.

joins in with 5. Following this, Antony does a further display of thinking on line 8, "°five six seven°", this time vocally during his explanation of why there were nine minutes of extra time added to the football match. This vocal thinking appears to be designed as self-talk. It is produced softly, though still audibly, suggesting that this talk is designed to convey that Antony remains committed to responding, and on the topic under discussion. Although apparently designed as self-talk, it allows Antony to hold his turn and avoid any intrusions from Yasmin during the silences present, suggesting it is also designed for his CP. This is effective as in the following 900 ms and 800 ms silences on line 8, Yasmin produces no talk.

Mentioned above at Extract 47, was the fact that Antony uses the elongated filler "er:::m" on line 2, placed prior to a 300 ms pause. This filler serves to account for that pause by displaying a hitch in the turn that delays its forward progression. It shows Antony's commitment to further talk and makes the silence a relevant part of his talk. Furthermore, Antony's display of embodied thinking and his following response suggest that he was having trouble with producing the correct word. Thus, the display of thinking helps to account for the delay in progressivity caused by this issue. It also possibly aids his production, as demonstrated by the completion of his turn following the display.

The fact that the displays of vocal and embodied thinking are produced for the interlocutor is also shown in Extract 49. This extract shows that PWA's use of vocal thinking can reveal the PWA's progress with a word search. Throughout this Extract, Emma (PWA) is searching for the noun phase "sea monster" as a way to describe her dog.

(49) 06EK-02-019-SeaMonster

```
1    EMM: I f- frunny .h: I said .h ooh I a eh been I:: text (2.0)
2 →       f:- er: eh oh awh:: a fwor tch. no (0.6)
3 →       I'm been I (0.2) text (1.2) er (1.2)
4          [°oh a little word ah nah no°
5          [((holds thumb and forefinger up in a 'small' gesture then
6         shakes head))
7 →       erm (1.3) pt. .h er s::ea monster
8    KAT: hehhehhehhehheh (1.4) aww:: .heh
```

In lines 1 to 2, Emma's turn is full of restarts, perturbations, and silences. She appears

to be attempting to commence a storytelling, indicating that what she has to say is funny ("frunny"). Through lines 1 to 6, Emma replaces the verb in her utterance, "I said", "I been", "I text", but is unable to find the right wording. On line 4 she indicates she is trying to produce a "little word". Her "little word" implies the missing lexical entity is becoming less elusive; Emma has retrieved the form of the word but not yet the content. However, her subsequent "nah no" on line 2 implies she has retrieved a word but has rejected the candidate repair. Emma then produces a gesture indicating "small" on line 6, again possibly suggesting she is searching for a small word (figure 6.3). Emma appears to reject whatever word she has found by shaking her head (line 6). Then, following further perturbations and silence on line 7, Emma retrieves the phrase "sea monster". Kate treats this as the conclusion of Emma's utterance and a TRP as she laughs in response to this retrieval.

Figure 6.3: Video still gesture representing a "little word".

As Emma undertakes the word search, she uses displays of vocal thinking to maintain her hold of the turn throughout the silences. As also seen in Example 10, Emma uses filled pauses, "er" and "oh", and audible in-breaths prior to silence in order to account for them and display commitment to further talk past those silences (lines 1, 2 and 7). Her subsequent "nah no" on line 2 then signals that a formulation from a search attempt has been rejected, further providing a display of her cognitive progress with the search. These vocal indications of her thinking progress then allow Emma to

account for the silences present in her talk while also displaying her progression with the search.

Emma's displays of vocal thinking appear to be designed as self-talk which do not require a response from Kate, thus holding Emma's turn while she undertakes the word search. For example, Emma's speech on line 4 is produced quietly and her gaze is withdrawn, suggesting self-directed speech. She also displays embodied thinking by closing her eyes during line 2, which further signals her withdrawal into a self-directed word search. Although Emma's displays of vocal thinking appear self-directed, like Antony's in Extract 48, they are still produced audibly and present a representation of Emma's mental progression with the search. Emma interspersing her displays of vocal thinking between the silences provide Kate with information on what Emma is attending to during her silences, suggesting that such displays are also directed towards her CP.

Throughout this extract, Kate does not assist with the search by offering any candidate solutions, nor request any account for the silences in Emma's turns. This shows that Emma's displays of vocal thinking hold her turn around her word search attempts and account for the silences within that attempt. These vocal displays of thinking also allow Emma to demonstrate the progress of the search to Kate. They provide an outward representation of Emma's internal mental processing in such a way that allows Emma to complete a self-directed word search without any interruption from her CP. This use of vocal and embodied thinking then allows PWA to undertake the complex act of word retrieval while also maintaining their presence in the current turn-at-talk.

Sections 6.1.1 and 6.1.2 have demonstrated that through using both embodied and vocal thinking practices, PWA are able to account for the absence of talk where it is due. PWA can account for the silences within their talk as ones in which they are doing thinking during the silences using gestural and vocal features, often in combination with one another. These features are recognised by CPs who then treat the the silences as necessary and relevant to the ongoing talk. Rather than these features being a display of the PWA's actual mental process, the embodied and vocal thinking displays provide the PWA's display of what may be occurring during that silence. The next section

demonstrates how PWA can account for the presence of silence by presenting them as another form of mental process, that of considering their response.

6.2 Silence and Word Selection

6.2.1 Silence and Delicates

This section demonstrates how silences can be used by PWA to display that they are taking time to choose their words before responding. Section 6.2.1 presents PWA's use of silence as one which precedes talk that is potentially delicate in nature and which may result in issues with affiliation. This silence is used by PWA as a mechanism for indicating that forthcoming talk will be potentially problematic or troubling to the hearer and hence have a disaffiliative impact on the talk. It shows that PWA are considering their choice of word selection prior to producing a response, and are attempting to mitigate the disaffiliative impact through a show of affect, such as presenting their stance as one of humour.

Extract 50 shows how silence is a key feature in the production of a potentially disaffiliative delicate. It also shows that the silence can precede a phrase that serves as a delicate rather than just a word. Yasmin (CP) asks Antony (PWA) to list who they are going out for a meal with later in the week.

(50) 01AY-01-001-Idiot

```
 1    YAS: who are we going with can you remember who we're going with
 2    ANT: we're going with erm (0.2) your: dad (0.3) .h Alan and her
 3         partner Emma (0.4) and we're going with your:: (0.2) .hh
 4         sister (0.2) Jo a:nd
 5 →       (0.8)/((begins to smile))
 6         the guy who's an [idiot
 7    YAS:                  [((smiles then drops smile
 8    ANT: (0.4) .h Ricky
 9         (1.7)/((ANT turns to YAS and grins))
10    YAS: that's not a very nice thing to be saying
```

Antony complies with Yasmin's request/query, "who are we going with" (line 1), and begins to list people on lines 2 to 4, including Yasmin's dad "Alan", his partner "Emma", and Yasmin's sister "Jo". At the end of line 4, Antony produces a conjunction but does

not immediately list the next name. Instead, an 800 ms silence follows during which Antony begins to smile (line 5). After this, rather than listing a name, Antony produces a description of "the guy who's an idiot" (line 6), before allowing a 400 ms silence, then the name of the person he has just called an idiot, "Ricky" (line 8). Antony then turns to Yasmin and grins during a 1.7 second silence (line 9). Yasmin responds with a reprimand on line 10, "that's not a very nice thing to be saying".

While first listing people on lines 2 and 4, Antony presents a thinking face during the silences between listings as displaying of embodied thinking that accounts for the silences between each referent. Just prior to producing the delicate phrase "the guy who is an idiot" on line 6, there is an 800ms silence which differs to the rest of Antony's pauses. The 800 ms silence is longer than his other listing silences, in both this and Antony's other extracts, by 400-600 ms. During this silence, Antony's face shifts from a thinking face into a smile. Antony has held the turn prior to this silence using a prolonged conjunction, demonstrating that his turn is syntactically incomplete and so the silence is part of his turn with further talk to come. The silence provides a hitch in the production of the planned turn, but lacks repair initiators and fillers. The presence of humour within the silence, via his smile, displays an affective stance towards the forthcoming talk. Antony's display of humour within the silence signals that the forthcoming speech is potentially inapposite and hence disaffiliative in nature. Antony's smile indicates that the forthcoming talk is to be treated as humorous, allowing him to mitigate this disaffiliative impact before he delivers the delicate noun phrase.

Yasmin begins to smile as the descriptor is reached (line 7), perhaps in response to Antony's use of humour to mitigate the inapposite term, though she quickly drops this smile and reproaches Antony for his talk (line 10). Antony's change of expression and smile during the 800 ms silence on line 5 identifies this silence as distinct from his prior silences, and works to mitigate the impact of his in-delicate description by treating the forthcoming talk as humorous. This suggests then that his silence is not due to trouble in the production of the turn, or the commencement of a word search, but is instead due to a deliberate halting by Antony to present a display of doing thinking about the rest of his potentially inapposite turn, while mitigating it in the process.

Extract 51 shows how mitigation for the inapposite term, and thus the PWA's

stance towards that term, does not have to occur immediately next to the term itself, as it does in Extract 50. The mitigation can occur during a silence prior to the disaffiliative turn, delaying its production and allowing the PWA to show selection of the forthcoming term to their CP. Dan (PWA) and Sarah (CP) are talking about buying wallpaper for their house. Sarah suggests how much a roll of wallpaper will cost and on line 2 Dan contests that "nice" wallpaper usually costs more than Sarah's estimate.

(51) 05DS-01-007-Shabby

```
 1    DAN:  yeah but you get it nice (1.5) usually dearer than that in't
 2         it
 3          (2.8)
 4    SAR:  what do you mean if it's nice
 5    DAN:  (0.8)/((pauses then begins to smile))
 6          [(1.7)/((laughs))
 7    SAR:  [((smiles slightly))
 8    DAN:  (1.1)/((turns to pick up glass, still smiling))
 9 →  DAN:  I don't want ought (0.3) shabby (0.3) hah[hahhah::
10    SAR:                                          [I won't] know what
11         it's like til it comes do ah
```

Dan suggests that wallpaper is "usually dearer than that" (line 1. Following a silence of 2.8 seconds, Sarah issues a query (line 4) that challenges Dan's assessment seeking an explanation for Dan's view. There is then 800 ms of silence (line 5) in which Dan maintains mutual gaze with Sarah. Part of the way through this silence, after 400 ms, Dan begins to smile. This evolves into outright laughter on line 6 as he turns to pick up a glass of water during 1.1 seconds of silence (line 8). Following this, Dan expresses that he does not want "ought (0.3) shabby" (line 9), issuing a potentially delicate term after a short silence. He follows this possibly disaffiliative expression with further laughter, which Sarah overlaps with an explanation; she "won't know what [the wallpaper is] like til it comes" (line 11).

Dan's smile and laughter during the silences on lines 5, 6, and 8 work to preemptively mitigate the disaffiliative impact of the term "shabby" by treating the talk as humorous. In response to Dan's laughter, Sarah smiles, suggesting that this premitigation is effective at creating a sense of affiliation with Sarah, similarly to Yasmin's initial smile in response to Antony in Extract 50. Dan also allows a further silence of 300 ms on line 9 just before the inapposite term "shabby" is produced. This identifies for Sarah where the disaffiliative production will occur. As Dan laughs he turns to pick

Figure 6.4: Video still of glass hiding mouth gesture

up his glass of water, then returns to face Sarah. Dan holds the glass in a position that obscures his mouth slightly while he delivers the potentially inapposite term "shabby" (figure 6.4). The placement of the glass in front of Dan's mouth furthers this display of the talk being potentially inapposite. The gesture works to physically mask the production of the word in an attempt to reduce the negative social impact of the delicate term. This extract then shows that PWA can use a smile or laughter during a silence just before the production of a delicate term or description, to signal to the interlocutor that a forthcoming element of the turn may result in trouble with affiliation. After the delicate term is produced, the silence can be interpreted as an external display of 'consideration' of the selection of the forthcoming word through delaying the production of it. Using humour within the silence, Dan presents his stance towards what he is about to say, acknowledging his forthcoming talk as potentially inappropriate.

Extract 52 differs slightly in the production of the delicate when compared with the above two extracts as, within the extract below, both word selection and word-searching is occurring. However, similarities are still present, including silence, raising of eyebrows and the gestural masking of the inapposite word. This extract also demonstrates how silences prior to word searches and word selections differ. In this extract Emma (PWA) and Kate (CP) are discussing the weather.

(52) 06EK-01-009-PishuDown

```
 1    KAT: ah it's going to rain anyway
 2         (0.4)
 3    EMM: I know
 4         (1.9)
 5         eh er: [(0.3) er eh::-
 6                [((raises hands))
 7         (1.3)/((waves hand in the air like rain))
 8 →       (1.0)/((looks to KAT, raises eyebrows, slaps hand to mouth))
 9 →       ((tilts hand away while still covering and raises eyebrows))
10 →       sh:: [er: eh: pishu down] ((drops hand))
11    KAT:      [((raises eyebrows and begins to smile))]
12    KAT:  [yeah (0.6)] all=er: and tomorrow
13    EMM:  [uhehhhehheh
```

Kate states that "it's going to rain" (line 1). Emma expresses that she is aware of this on line 3, "I know". 1.9 seconds of silence follow this exchange, after which Emma resumes speaking but has difficulty producing her turn. This is shown by her filled pauses "eh er: (0.3) er eh::" (line 5), and her waving hand gesture during further silences (lines 6 to 7), suggesting the commencement of a word search. Emma then turns and looks to Kate, raises her eyebrows, and covers her mouth (line 8) before upgrading Kate's original comment of "it's going to rain" to "pishu down", suggesting the expletive phrase "piss it down" (line 10). Emma then drops her hand from her mouth and Kate, who has raised her eyebrows at Emma, smiles and agrees as Emma begins to laugh (lines 11 to 13).

Unlike Extracts 50 and 51 above, evidence of difficulty with word retrieval is present in Emma's talk, as seen by the multiple filled pauses on line 5. Emma gaze remains withdrawn until line 8, indicating self-directed work is occurring. She also produces gestures that represent the sought after word. As demonstrated in Chapter 5, these are all elements of a PWA undertaking a self-directed word search. This shows that some of the silences present, such as those on line 5 and 7 are searching silences. However, partway through the 2.3 second silence on lines 7 and 8 this silence shifts from a searching silence to a delicate silence. This is shown by Emma concluding her waving hand gesture that is representative of rain, then following this with further silence rather than talk as the extracts in Section 5.3.1 do.

Instead, Emma produces another gesture in which she raises her eyebrows and slaps her hand to her mouth while making eye contact with Kate. Raising her eyebrows

Figure 6.5: Video still of hand gesture covering potentially inapposite term

in a small smile gesture indicates that Emma is presenting a stance of humour, and placing her hand over her mouth suggests that, like with Dan in Extract 51 above, she is showing that the forthcoming talk is potentially inapposite and is trying to mask the production of it. This displays her stance towards the term as an inappropriate one. Emma then, after a brief difficulty, produces the delicate expletive "pishu down". As this occurs, Kate also raises her eyebrows, smiling slightly, and confirms Emma's delicate phrasing as acceptable on line 12 showing she is aligning with Emma's humorous stance.

This shows that word searches and word selection can occur together in PWA's talk and that they can be distinguished by what occurs within the PWA's silences. Rather than a selection being due to difficulty like searches are, they function to signal that a potentially inapposite term is forthcoming. PWA are able to use selection silences coupled with humorous signalling to intentionally impart a stance towards what is being said and mitigate the possible disaffiliative impact of using a delicate term.

This section has demonstrated how PWA use silence and the talk surrounding it to illustrate to the CP their selection of the words they choose to include within their turn. Within delicate turn productions, PWA's silences provide a display of the PWA taking time to select a word that may result in trouble through imparting a disaffialitive impact on the conversation, along with the PWA's apparent hesitance to produce the term. Although a small collection, the features of silence, humour and even a physical

attempt to cover up the forthcoming inapposite term reoccur throughout the extracts within this collection. The next section progresses from the PWA's production of a turn to examining their receipt of the information provided in a CP's turn by looking at silences which occur in conjunction with the change of state token "oh".

6.3 Silence and Understanding

This section examines how PWA present their understanding to their CP using the change of state token "oh". It shows that, when the token is preceded by a silence, the CP treats this as a legitimate display of understanding and the conversation continues with the progressivity uninterrupted. However, when there is no silence prior to the production of the "oh" token, contrary to neurotypical communication, the CP treats this as the PWA only claiming understanding. This then results in follow-ups and clarifications being issued by the CP in order to secure a legitimate display of the PWA's understanding.

6.3.1 Silence and Claims of Understanding

This section shows that, when there is no silence immediately prior to a change of state being produced, the CP treats this as a claim to understanding rather than a display in the majority of the extracts within this collection. The CP then goes on to clarify their action until they gain a signal that the PWA has understood, or is unable to understand the information being imparted.

Extract 53 shows how silence can be integral to a PWA's display of understanding, and its absence can result in the CP treating a change of state token as a claim of understanding. In Extract 53, Amanda (PWA) and David (CP) are playing a speech and language therapy card game, demonstrated in figure 4.3, in which one of the participants mimes a card while the other guesses what it is, they then have to correctly place the card on the corresponding picture sheet on the table. Amanda has just guessed "angry" and is looking for the corresponding picture sheet. After an extended period of Amanda looking for the sheet, David indicates the correct sheet to Amanda, "on this

one" on line 1.

(53) 04AD-02-005-Angry

```
 1    DAV:  [((points to sheet)) on this one
 2          [((AMA looks to sheet then down at card))
 3 →  AMA: oh
 4          (0.5)/((looks down at card))
 5    DAV: no this [one ((points))
 6    AMA:         [((looks at sheet DAV points at))
 7 →  DAV: (0.6)/((taps correct answer sheet))
 8 →       (0.4)/((AMA moves card to correct sheet))
 9    AMA: oh yeah:
10 →       (1.4)/((puts card in correct place)) an:wee
11          ((game resumes with DAV taking a turn))
```

While David is indicating the correct sheet, Amanda follows his pointing (line 1), then immediately responds with a change of state token "oh" without any intervening silence on line 3. However, she does not move the card to the corresponding sheet, only briefly looking down at her card again in the following 500 ms silence (line 4). While this may be a precursor to Amanda moving her card, David does not treat it this way, instead saying "no this one" and pointing to the correct sheet again (line 5). After David indicates the correct sheet for a second time and then begins to tap on it (line 7), Amanda once again looks at the sheet David points to, but this time allows a 1.0 second silence to pass before beginning to move her card and supplying a change of state token (line 10), demonstrating her understanding by placing the card on the sheet David indicated on line 8.

There us a contrast here between the first and second productions of Amanda's "oh" tokens. Amanda's first "oh" token on line 3 occurs with no silence before it. There is also an absence of any physical show of understanding. David responds to this by halting the progressivity of the interaction, repeating his prior information about the correct answer sheet (lines 5 to 7). This shows that David is treating Amanda's "oh" token on line 3 and her absence of immediate card movement as only a claim to understanding.

David's repeated verbal indication of the correct answer sheet is followed by 1.0 second of silence before Amanda produces her second change of state "oh" (line 10) (400 ms after David's gestural indication). After this, she places her card on the correct answer sheet. This time, David appears to accept this change of state token as a display of Amanda's understanding rather than a mere claim as he did previously, as he moves

on to pick out the next card prompt and resume play. The presence of silence before the "oh" token allows Amanda to begin her movement towards placing her card on the sheet, thereby displaying understanding before delivering a verbal production. Having this movement be midway through the verbal show of understanding, supports the verbal "oh" to become a legitimate demonstration of her comprehension of David's prior turn. Thus, the silence shows a consideration of the information presented by David rather than merely receipting it as the initial "oh" on line 3 does. This suggests then that a lack of of silence before the change of state token delivery is problematic.

Similarly to Extract 53, Extract 54 also shows how a PWA's lack of silence prior to the production of a change of state token is treated by the CP as only a claim of understanding. However, this extract differs sightly from Extract 53, as when a display of understanding is pursued by the CP, the PWA is unable to provide it. In this extract, Chris (CP) is reminding Luke (PWA) of a restaurant that they have been to, but Luke is unable to recall it.

(54) 07LC-02-013-Steak

```
 1    CHR: well it's not a Red Lion any more is it it's that steak
 2         restaurant that we went to
 3         (1.4)
 4    LUK: ((coughs))
 5    CHR: Fox and Grouse (0.7) d'you remember
 6         (0.5)/((LUK does a small head shake))
 7    CHR: you used- the restaurant next door to North Green (0.4) .h
 8          [it]
 9    LUK:  [yeah]
10    CHR: used to be called the Red Lion
11    LUK: yes ((nods))
12    CHR: it's not now it's a steak restaurant
13 → LUK: oh
14         (0.3)
15    CHR: you remember w- we went with Ella
16         (1.3)
17    CHR: don't you remember
18    LUK: no
19         (0.9)
20    CHR: yeah think you had a steak
```

Chris explains that a pub they have been to previously is no longer a "Red Lion", but a steak restaurant called the "Fox and Grouse", reminding Luke that they have eaten there before (lines 1 to 5). Chris checks whether Luke recalls attending the restaurant when Luke does not display any understanding following 700 ms of silence, "Fox and

Grouse (0.7) do you remember" (line 5). Luke indicates that he does not remember on line 6 and Chris provides more details about the referent, "next door to North Green" and "used to be called the Red Lion" on lines 7 to 10. Luke receipts this information with a "yes" and a nod on line 11 and Chris repeats his informing from line 1, that the pub is now "a steak restaurant" on line 12.

Following this, Luke produces a change of state token without any silence present prior to his response (line 13). Luke does not offer any further talk or display of understanding. Chris responds by resuming his prior action of reminding Luke about the trip to the restaurant on lines 15, 17 and 20. This shows that Chris is treating Luke's change of state token as only a claim of understanding, or as only partial understanding of the facts provided, as opposed to recalling the steak restaurant. Chris' subsequent attempts to remind Luke from line 15 to the end of the extract undertake further work to retrieve a display of understanding from Luke, and delay the progressivity of the talk. However, these are unsuccessful and Chris subsequently abandons this line of action as the topic changes following this allowing the progressivity of the interaction to resume. Therefore, this extract again shows that the absence of a silence prior to a PWA's change of state token will result in the token being interpreted by the CP as merely a claim of understanding rather than a legitimate display by the PWA.

6.3.2 Silence and Displays of Understanding

This section shows that the presence of silence prior to a PWA's change of state token is treated by the CP as a display of understanding of the information presented. This occurs overwhelmingly within the collection: silence appears to be a regular feature of PWA's displays of understanding. The silence can provide an opportunity for the PWA to display their understanding through issuing a non-verbal display, such as a nod, laughter, physically orienting to the entity under discussion, that continues through the production of the change of state response token. There may also be a further verbal display of understanding following silence plus *oh*-token.

orienting to the physical item under discussion, if one is present, and to provide a brief display of understanding during a micropause such as or

Extract 55 shows how silence present prior to the production of a change of state token is not considered by participants as an accountable action. In this extract, Chris (CP) tell Luke (PWA) that he needs to take his scooter for an MOT on line 1.

(55) 07LC-02-013-MOT

```
 1    CHR: tomorrow I've gotta take the scooter for its MOT
 2         (0.7)
 3    LUK: where
 4         (1.0)
 5    CHR: at er:: Jericho's which is near Darnell Lane
 6 →       (0.4)
 7    LUK:  [oh
 8          [((slight nod))
 9    CHR: we take it for the MOT (1.1)/((thinking face)) it's only
10         twenty nine pounds for the MOT which I think is really
11         reasonable
```

On line 3 Luke queries "where", and Chris responds with the name of the MOT place, "Jericho's", and the location, "Darnell Lane", (line 5). After Chris' answer, there there is a 400 ms silence (line 6). Luke then issues a change of state token "oh", nodding very slightly as he produces it. Following this, Chris resumes the talk by explaining the price of the MOT and his assessment of it (lines 9 to 11), without any interruption to the progressivity following Luke's "oh" token. This suggest that Chris is treating Luke's change of state token as a legitimate display of understanding of the information presented to him.

What differs here from the extracts in section 6.3.1 is that there is a 400 ms silence present prior to Luke's change of state token. During this silence (line 6), the only occurrence is a visible, but inaudible, in-breath from Luke showing his preparation to respond. The movement becomes a single nod as Luke produces the change of state token. Chris' response on line 9 shows that he has not treated the presence of silence here as an indicator of trouble, nor does he treat Luke's turn as anything other than a display of understanding, as shown by his resumption of the MOT discussion. This demonstrates that silence accompanying a change of state token is an acceptable occurrence, particularly when the PWA uses the silence to display an embodied commitment to an upcoming response. Furthermore, the interruption to progressivity seen in Section 6.3.1 that is caused by the CP re-delivering information to gain further displays of understanding from their PWA is not present. This shows that the presence

of silence prior to a change of state token results in the CP treating the PWA's show of understanding as a legitimate display

Extract 56 shows how the silence before the change of state token can be longer when the process involved in displaying understanding involves some entity that the participants are orienting to. In this extract, the entity is Kate's (CP) mobile phone. Kate is trying to buy cereal on the website Amazon, but is having difficulty due to the items being part of Amazon Pantry rather than the main Amazon website.

(56) 06EK-01-009-AmazonPantry

```
1    KAT: add to basket now can I buy 'em (4.5) tch. h.
2         (1.0) no cos it's on Amazon (0.7) Pantry
3 →       [(5.2)/((EMM looks at phone))
4         [((KAT moves her glasses up her nose and taps phone once))
5    EMM: oh (2.4) not good th[at]
6    KAT:                      [no]
```

Kate is verbalising her attempts to purchase the cereal, "add to basket now can I buy 'em" (line 1). Kate then produces a complaint at the end of line 2, "no cos it's on Amazon (0.7) Pantry" that provides an explanation for her failure to complete the task underway, and for her irritated affect that she is presenting. 5.2 seconds of silence follow during which Emma (PWA) continues looking at Kate's phone, Kate shifts her glasses and taps on her phone once (lines 3 and 4). Emma then offers a change of state token after this silence, followed by an assessment following a further silence "oh (2.4) not good that" (line 5). The extract ends with Kate agreeing with Emma's assessment and continuing her online shopping.

In this extract, Emma's change of state "oh" token occurs following a silence (line 3) and is followed by an assessment, "not good that", which demonstrates her comprehension of Kate's complaint (line 5). During the 5.2 second silence, Emma (PWA) remains looking at Kate's phone without moving, changing facial expression, or any indication of commencing talk. 2.4 seconds after her "oh token", Emma delivers her assessment. In overlap with this assessment, Kate produces a preferred agreement of "no". This shows that Kate has not treated the extended 5.2 second silence before Emma's "oh" as a marked silence, and that Emma's "oh" token is accepted as a legitimate display of understanding. This displays that PWA can take more time before producing a change of state token than is common for neurotypical individuals (Heritage, 1984a),

and that this is not something that is marked by CPs.

Extract 57 demonstrates how CP are able to differentiate when the presence of a silence in PWA's talk indicates trouble, and when silences are present as part of the PWA doing understanding. Yasmin (CP) is explaining to Antony (PWA) why she needs to buy four of the same newspaper and for whom, when Antony queries why these people are unable to buy their own at an inaudible location (line 1).

(57) 01AY-02-011-Newspapers

```
 1    ANT: why don't they go [to (xxx)] and get them there
 2    YAS:                   [((coughs))]
 3         because their AGM's at ten o'clock on Saturday morning
 4         (1.8)((ANT looks away and lowers eyebrows slightly))
 5    ANT: wuh-=
 6    YAS: =at Northend Church
 7 →       (0.5)/((ANT begins to turn away and nod once))
 8    ANT: ahh ((ends nod))
 9         (0.5)
10    YAS: so they've all got to get across there and Leanne organises
11         (0.5) tea and coffee (0.1) so she's got to go across and put
12         the boiler on about nine o'clock
```

Yasmin explains that the people she is discussing cannot buy their own newspapers due to their building's annual general meeting (AGM) being "at ten o'clock on Saturday morning" (line 3). Antony does not display understanding at this point, instead looking away and lowering his eyebrows into a thinking face during a 1.8 second silence (line 4). Yasmin treats this reaction as displaying a lack of understanding as on line 6 she produces an adverbial increment providing the location of the AGM, "at Northend Church". This treatment of Antony's silence being a lack of understanding is supported by Antony's "wuh-" cut-off on line 5, which may projects an interrogative or a challenge.

Following Yasmin's "Northend" increment, there is a further silence of 500 ms. During this, Antony's gaze, which before now has remained directed towards Yasmin, shifts. He turns away and nods as he produces the change of state token "ah" (line 8). Antony's silence, withdrawal of gaze and nod all serve to demonstrate his understanding of why the people listed cannot get their newspapers from the location that he suggested on line 1. Yasmin appears to treat this as an acceptable display of understanding, as she resumes her telling of why she has to get the newspapers for the people attending the AGM (lines 10 to 12). This shows that CPs can differentiate between PWA's silences

that show trouble with the information presented, such as on line 4, and silence like line 7 that are used to complement a display of understanding.

The extracts in this section have shown how, when PWA provide a legitimate display of understanding, silence precedes the PWA's change of state token. This is treated by CPs as a legitimate show of comprehension from the PWA. When the silence is absent before an *oh*-prefaced turn, the CP instead treats the "oh" as only a claim of understanding.

6.4 Chapter Summary

This chapter has demonstrated how PWA use silence to claim that a mental process is occurring. The examples have shown PWA using embodied and vocal silences to account for the absence of talk where it is due, allowing them to display 'doing thinking' before producing the talk. Silence has also been shown as a device to present the PWA's careful selection of a term that may result in issues with affiliation in the case of delicate utterances. The inclusion of silence allows the PWA to attempt to mitigate this impact through devices such as humour. The silence also prepares the CP for the arrival of the inapposite term.

Finally, silence has been shown to be an important part of a PWA displaying their understanding of information provided to them by the CP. The absence of silence suggests a lack of comprehension of the CP's turn and is treated as such by the CP. Though it is unclear whether the displayed mental process is actually occurring, the representation of that process by the PWA and CP's acceptance of the silences in these displays shows that PWA possess ways to account for silences within their talk, and can also signal when silences are necessary or required as part of their turns-at-talk.

Chapter 7

Discussion

This chapter examines the main findings of this study, exploring links to existing research. It discusses how the findings achieve the aims and objectives of the thesis while also considering the implications of those findings.

The motivation for this research arose from healthcare guidance on silence and aphasia which indicates that silences do not have a communicative function within talk, and that additional silences are required by PWA in order for them to produce and comprehend talk. (Aphasia Alliance, 2019; Aphasia Institute, n.d.; Aphasia Institute, 2012; Aphasia Institute, 2020; National Aphasia Association, n.d.; NHS, 2018). The main aim of this research was to understand how people with aphasia and their communication partners use and understand silences within everyday conversations.

PWA's and CP's occurrences of silences were investigated by examining both parties' usage and treatment of the silences, along with the surrounding talk. This revealed how silences were being used and understood within the conversation, and allowed for an understanding to be developed of the difference between the occurrence of silence as a reflex of additional linguistic processing time, versus its use as a purposive communicative practice.

The findings of this study are as follows:

- Silence is a preserved resource for PWA and does not just occur as additional processing time. PWA are capable of using and recognising the use of silence as

a functional, communicative device that contributes to the production of meaning and action. These silences are treated by CPs as performing action during conversation.

- Silence can also occur as a result of aphasia. PWA recognise that silence is a location at which they may be susceptible to turn-loss and can use turn-holding devices in order account for silences that occur during their turn, and hence signal when they require more time to complete their turn-at-talk.
- Silence and the way it is accounted for, is an essential part of PWA claiming to undertake an external social representation of internal mental processes, including doing thinking, word selection, and displaying understanding.

The remainder of this chapter addresses each of the findings of this study in turn, in sections 7.1, 7.2, and 7.3, detailing where they fit within current literature and the implications of the findings.

7.1 Functional Uses of Silence

One objective of this study was to determine how PWA and CP used and understood silences within everyday conversations and whether the functional uses of silence that occur within neurotypical talk are a preserved resource for PWA. This study found that PWA are still able to use silences communicatively to perform a variety of functions within conversation. This section shows that PWA use and treat silences as having a functional purpose within conversation, and that their CPs are receptive to these functions, treating silence as a communicative device when it occurs as such. Finally, this section discusses the assistance that silence provides when ascribing action to PWA's turns, demonstrating the importance of recognising silence as more than just a gap in talk resulting from aphasia.

7.1.1 Silence is a Preserved Resource for PWA

A significant finding of this study was that PWA use silences in dispreferred responses the same way as neurotypical individuals: as a way to delay the initiation of

the dispreferred turn[1] (Kendrick and Torreira, 2015; Levinson and Torreira, 2015). It is clear that aphasia does impact on the ability to form a typical dispreferred response by, in some cases, limiting what features of a normative response may be included. For example, accounts and other mitigating features are often elided, yet silences are still present.

An explanation for why PWA can produce a turn-initial delay but do not always produce other features of a dispreferred response is that silence's role as a communicative device is not impacted by aphasia. This suggestion is in alignment with Perkins' (1995) finding that PWA's understanding of conversational norms is not impaired. PWA still retain awareness of the structuring of turn-taking in talk and thus, can use silence to form their turn according to conversational norms. The production of silence is a less complex communicational feat than constructing and producing a coherent string of lexical items, making the use of silence a simpler task than using speech for PWA.

This finding indicates that silence does not always occur as a result of their aphasia, but can be produced by PWA as a purposive communicative practice that helps to impart meaning to their turn. It allows PWA to display to their CP that they are not in alignment with the prior turn and that their forthcoming response will be dispreferred. CPs were also shown to recognise when PWA were producing dispreferred responses and respond accordingly, for example by attempting to mitigate the dispreferred turn. This suggests that the presence of silence is then an even more essential aspect of a PWA's production of a dispreferred response, particularly for those with severe expressive aphasia, as it is one of the few ways in which they can signal that their response is not in alignment with the prior turn.

A further important finding relating to preference structure, was that PWA produced preferred responses without the inclusion of silence or any delay at the start of their turn, in the same way as neurotypical speakers (e.g. Pomerantz and Heritage, 2012). This shows that silence is not an inevitable feature of PWA's talk. This also suggests that PWA are capable of comprehending the action-in-progress in their CP's turn, projecting the end of the turn and formulating a response before their CP con-

[1] Often by around 700ms or more.

cludes their talk in the same manner as neurotypical speakers (Bögels, Casillas, et al., 2018; Bögels, Kendrick, et al., 2019; Bögels and Torreira, 2015; Magyari et al., 2014).

This outcome is contrary to Schienberg and Holland's (1980) finding that PWA's talk does not follow the minimal gap and overlap rule of neurotypical conversation (Sacks et al., 1974). Schienberg and Holland suggest that PWA require more "processing time to decode the present speaker's utterance" (1980, p. 110) which then leads to the presence of silence between turns. In contrast to this, the current study has demonstrated that PWA do not always need additional silence and that when silences do occur, they are often not treated as marked occurrences by CP's or as being used differently to neurotypical individuals.

This difference between the findings of the current research and that of Schienberg and Holland's (1980) may be due to the fact that Schienberg and Holland do not display any recognition that silence can occur at the start of a speaker's turn in a communicative capacity and thus as a planned part of the turn. Furthermore, Schienberg and Holland only examined 10 minutes of talk between a single dyad, limiting the generalisability of their results. As demonstrated by the current study, aphasia and its impact on communication can vary greatly, and additional processing time is not always required. On the occasions where silences do occur at the start of a PWA's turn, they are usually either communicative, which is highlighted by the surrounding talk (as discussed above), or they are accounted for by features within the PWA's talk (discussed further in Sections 7.2 and 7.3).

There are, however, instances in which turn-initial silences do not fall into either of these two categories. Silence as an artifact of aphasia was shown to occur prior to a PWA's preferred SPP. This resulted in the CP misunderstanding the turn and instead ascribing the action of an upcoming dispreferred response. This leads to a breakdown in intersubjectivity that had to be repaired in the following turns. Aphasia affects people in different ways and the impact of aphasia can vary according to stress level, tiredness (Brookshire, 2007). This means that the impact on the time required to produce a response, along with the length of silence between turns, will likely vary for all PWA. In fact, some of the participants mentioned during the video recorded conversations that the PWA was speaking well today, demonstrating that the participants have an

awareness of the variation in the PWA's communicative ability from day to day. An explanation for the CP's occasional misunderstandings of the PWA's silences, is that CP's still regularly treat PWA as having the response times and capabilities of a neurotypical speaker. Therefore, when a silence resulting from aphasia occurs in a location that is typically considered communicative, it may be that CPs have not adapted to this type of silence, particularly as it may be an intermittent occurrence for some due to the variability of aphasia.

An issue that emerges from these findings, is that having healthcare guidance which implies that aphasia regularly causes increased instances of silences in PWA's turns is misleading and encourages misinterpretation of a preserved resource. Encouraging CPs to allow longer silences or treat PWA's silences as non-communicative can lead to a breakdown in intersubjectivity within talk. This research has shown that PWA do not always require additional time to understand and form a response, and instead, some PWA are able to accurately anticipate and plan for a potential TRP. Therefore, PWA's processing time can be close to that of a neurotypical speaker, but is also an ability that can be highly variable due to the nature of aphasia.

7.1.2 PWA Treat CP's Silences as Doing Something

Following on from the finding that PWA use silences to do things within conversation, another important finding of this study is that PWA also treat their CP's silences as doing something, performing some action. PWA were shown to recognise when a silence may signal a CP's possible forthcoming dispreferred or disaligned response, indicating their CP's lack of affiliation and alignment with the PWA's turn. In order to resolve the silence, some PWA were shown to be able to produce further talk that is syntactically fitted to their prior utterance in an attempt to modify or mitigate their initial statement and promote alignment and affiliation with their interlocutor.

An explanation for this treatment of silence is that, not only can PWA *use* silences according to the practices of neurotypical conversation, but they can also *treat* silences in the same way as non-aphasic speakers. PWA recognise silence as something which is to be minimised (Sacks et al., 1974) and which may carry communicative content. By

claiming the silence via a new TRP, PWA are shown to be following the preference for progressivity in interaction (Schegloff, 1979; Stivers and Robinson, 2006). which has also been seen in other studies (e.g. Barnes and Armstrong, 2010; Beeke, Maxim, et al., 2018; Beeke, R. Wilkinson, et al., 2003; Beeke, R. Wilkinson, et al., 2007).

PWA were also seen to treat silences that follow their possibly complete turns as a way to determine whether there was shared intersubjectivity following their turn. Issues with intersubjectivity occur frequently in conversations with PWA due to the nature of the impairment, and it has been found that CPs regularly have to assist in repairing and maintaining intersubjectivity when problems arise (Barnes, 2014). However, this research demonstrated that PWA can also repair problems in intersubjectivity themselves. An absence of response, minimal or otherwise from the CP led the PWA to produce further talk in attempts to resolve ambiguities present in their prior turn so as to promote the production of the CP's response and avoid a repair sequence.

An explanation for these results is that the PWA is using the CP's paralinguistic signals that occur towards the end of the PWA's turn and during the silence to identify that a lack of understanding is being displayed by their CP. This indicates that, not only can PWA produce silences that carry meaning, but they can also assign meaning to a silence produced by an interlocutor and use that silence as a space in which they can adjust the content of their host turn.

While these are significant findings for PWA, these results must be interpreted with caution because they may not hold for all people with aphasia. The majority of the examples in the collection that demonstrate this finding are from those PWA who are more fluent in their talk and have stronger linguistic capabilities. Producing further talk to clarify or mitigate a prior turn is not an ability held by all PWA due to the linguistic complexity associated with linking a new turn to a prior one. People with non-fluent aphasia may be unable to undertake such a task due to the characteristic impacts of aphasia (Brookshire, 2007; Potagas et al., 2017; Rhys et al., 2013; R. Wilkinson, 1999).

However, the evidence presented in this study suggests that PWA are aware of what a silence from their interlocutor may mean. There is also some evidence that people with non-fluent aphasia demonstrate limited attempts to progress the talk in such a way. While it may be that all PWA can treat their CP's silences as doing some-

thing, for those with more limited linguistic capabilities, the talk that would provide evidence for such a claim is not produced. This is a limitation of using the methodology of Conversation Analysis and will be discussed further in section 8.2. Therefore, while such treatment of silence can be seen for those with less severe aphasia, it can only be inferred for those whose aphasia is more severe.

An implication of these findings is that, should interlocutors follow current health-care guidance and allow more time for PWA to speak, PWA may treat their CP's 'allowed' silences as evidence of there being some trouble in the interaction caused by this talk. For example, PWA may mistakenly misinterpret that their CP is not aligning with the PWA's turn and is displaying a lack of affiliation. The PWA may then unnecessarily attempting to resolve the non-existent trouble that is suggested by the CP having allowed more time.

These findings, while preliminary suggest that aphasia may not affect PWA's understanding of non-verbal communicative signals. This means that PWA can take note of their partners' response times, their gestures and other non-verbal signals that occur during a silence and make inferences about what the presence of that silence may mean. Thus, increasing silences in talk with PWA may result in a greater number of misunderstandings occurring during PWA-CP conversations.

7.1.3 Silence Aids Action Ascription

As shown above, silence is a useful communicative device for PWA, as well as CPs, and both parties are able to identify when it is used communicatively. A benefit of this, and further finding of this study, is that silence can then contribute to action ascription when PWA's talk is unclear. In extracts where PWA's speech has been formed of neologistic jargon, or semantic paraphasias and thus the content of the turn unclear, CPs appear to use the communicative content inferred by, or held within PWA's silences to aid in the action ascription of PWA's turns. For example, CPs have been shown to use the presence or absence of silence to determine the preference structure of a PWA's utterance, use gestures that occur within the silence to identify referents, and treat silence as an additional identifier of whether a PWA is displaying

or claiming understanding.

Prior literature has demonstrated the necessity of PWA and CP adapting to aphasia and using alternative features of communication to compensate for the loss of language caused by it. For example, the strategic arrangement of TCU components (Barnes, 2013; R. Wilkinson, 2015; R. Wilkinson, Lock, et al., 2011) or the use of non-typical grammatical structure to construct turns have both been shown as ways in which PWA adapt their talk to create meaning (Barnes and Possemato, 2020, p.228). The same may be the case with silence as demonstrated in this study. For PWA with extensively limited communication abilities, speech may not be the primary feature of their communication that is used by their CP's to ascribe action to their turns. Among other features, such as gesture and turn positioning, silence can be a key feature of talk that contributes to the maintenance of intersubjectivity between speakers.

Martinelli found that PWA's actions may be "unchecked or lost" (2021, p.9) when CPs did not engage in collaborative talk with PWA, such as joint production and offering candidate responses. This led to misunderstandings and loss of information. Barnes and Ferguson (2015) also found that CP's use of receipting responses only minimally supported the actions of PWA's turns. Interestingly, the current study found that CPs can be responsible for controlling the trajectory of talk and the PWA's action of turn when they use PWA's silences to take a turn, particularly when they have to guess at what PWA are saying. Furthermore, when action ascription by CPs does not occur, an unclaimed silence occurs. This can result from a CP's response being due but not being provided, or the PWA inviting a candidate response and not receiving one. In neurotypical conversation, such a silence could be treated as inapposite or sanctionable. However, in this study it was shown that some PWA, particularly those with severe expressive aphasia, do not always have the communicative abilities to resolve such a silence.

One explanation for these findings is that, as the turns that precede the no-response silences contain neologistic jargon, the CP is unable to understand what is being said and so does not treat this as an identifiable FPP. While gaze and interrogative intonation may be present, the use of interrogative morpho-syntax, clear selection of the CP as next speaker, and the lexical content of the turn may be unclear and so

the response relevance is greatly lowered (Stivers and Rossano, 2010). This can lead to PWA's turns being disregarded and their actions ignored. The absence of action ascription may also result from the CP being occupied with another activity such as watching the television and, therefore, be distracted by that activity, or consider the conversation to be in an ongoing state of incipient talk and a response not required (Hoey, 2015; Schegloff and Sacks, 1973). This finding suggests that some PWA can be reliant on their CPs when producing actions and without the cooperation from the CP whom PWA can rely on to help produce their utterances, the FPP cannot be produced.

Alternatively, no response from their CP can force PWA to undertake further interactional work to resolve the lack of response, or otherwise allow the silence to develop into a lapse. A troubling finding that emerges here then is that PWA, through the inability to resolve such silences and get action ascribed to their turns, lose agency within the conversation as their actions can fail to be implemented when unsupported by their CPs.

A note of caution is required here because, as demonstrated in Sections 4.3.2 and 4.3.3, not all PWA have trouble clarifying or producing further talk after completing a TCU. Some PWA are able to utilise their more intact linguistic skills to modify their prior utterance and promote a response from their CP. It is also possible be that the PWA is instead choosing not to pursue a response rather than being unable to do so, although this appears less likely to be the case when the PWA's initial formulation of their turn is unclear and contains perturbations and other difficulties with production. In such cases, this suggests that rather than choosing not to pursue a response, PWA are instead verbally unable to do so.

Regardless of the reason why PWA do not pursue a response to a lack of action ascription, these findings demonstrate that allowing silences to prolong as "extra time" will not assist PWA to produce further talk if they are unable to do so, instead it will only emphasise the CP's disengagement with the PWA's turn and the loss of agency that PWA experience.

7.2 Accounting for the Presence of Silence

A further objective of this study was to understand how PWA and CP responded to silence that could be, or at least appear to be, non-communicative in nature. This section addresses that issue and details how PWA account for silences that occur within their talk by demonstrating to their CP that their turn is unfinished and they are committed to producing further talk. When turn-holding features are absence and difficulty evident in the PWA's turn, this is treated as a space suitable for turn-transition by the CP who regularly offers assistance to the PWA. It also addresses the fact that silences do not always belong to PWA and how silences are negotiated within repair sequences.

7.2.1 PWA and Turn-Holding

An important finding of this study was that PWA appear to treat silences as locations which may be more susceptible to turn loss or interruption if they do not signal that further talk is forthcoming. PWA were shown to account for silences using turn-holding devices prior to a silence, including: in-breaths, filled pauses, non-final intonation, the syntactic arrangement of the turn, pausing of gestures mid-air, and gazing away from their CP. Through using these devices, PWA can signal when a silence belongs to them and project that there will be further talk past the silence. This suggests that silences can be an anticipated part of a turn-at-talk for PWA, and that PWA are able to account for silences as they occur.

Lerner previously described the use of "uh/um" in neurotypical speech as an indicator of delay in progressivity and a device that makes a silence "additionally relevant" (Lerner, 2013, p.101), the same usage which can be found in PWA's talk within this study. This demonstrates PWA's awareness of the need to account for a silence within talk. PWA have also previously been shown to combine their talk with semiotic resources in a way that minimises delays to progressivity and as a resource for the organisation of action, resulting in PWA holding their turn to complete an action (Barnes and Possemato, 2020; C. Goodwin, 2003; R. Wilkinson, Beeke, et al., 2010). It was shown in this study that PWA are able to make use of turn-holding features to account for silences that occur within their turns, demonstrating their commitment

to further talk. Furthermore, CPs appear to respect these turn-holding devices and allow the silence to pass unmarked in instances where the PWA has signaled that they require more time to complete their turns. Therefore, demonstrating commitment to the completion of a turn is something that some PWA have the resources to do.

It has previously been determined that silence alone is not an end of turn signal for participants. Interlocutors plan their turn prior to another speaker concluding their talk, and rely on features such as falling main pitch, lengthening of final words, and audible out breaths to project the end of a current speaker's turn (Local and G. Walker, 2012). Participants work on a combination of these turn-ending signals and projecting the end of a turn using grammatical, syntactic and pragmatic cues (de Ruiter, Mitterer, et al., 2006; Heldner and Edlund, 2010). This leads to typical lengths of silences between speakers being approximately 200 ms or less when silence is not being used communicatively, with a preference for no gaps, or no perceptible gap, between turns (Heldner and Edlund, 2010; Sacks et al., 1974). As such, participants have a "fine-grained orientation"(Drew, 2009, p. 26) to when another speaker's talk may be complete and the presence of silence does not necessarily indicate a TRP (Jefferson, 1986).

However, as demonstrated in this research (Section 4.2.2), when turn-holding features are absent in PWA's mid-turn silences, the CP is more likely to speak than when PWA's turn-holding features are present. This was also found by Wilkinson who notes that "opportunistic" interlocutors can use PWA's silences as openings to complete the PWA's turn (2007, p. 544). It can be suggested then that the increased presence of silence present in PWA's talk leaves them vulnerable to losing the conversational floor. The use of turn-holding devices demonstrated in 4.2.1 display that PWA are sensitive to this fact.

The current study also found that where turn-holding features were absent prior to a PWA's mid-turn silences, there is also present evidence of PWA's difficulty in completing their turn, shown by the presence of perturbations and hesitation markers. These were treated as evidence of difficulty by the CPs as the loss of turn at these silences regularly results from the CP offering communicative assistance to the PWA. Thus, mid-turn silences can be locations in which PWA are vulnerable to turn loss,

unless turn-holding features are utilised by PWA.

An implication of this finding is the possibility that, in conversations with PWA, allowing for increased or longer silences may be treated by participants as evidence of PWA's difficulty with turn-construction and hence difficulty with processing a response. Healthcare guidance which advises the allowance of increased silence within talk implies that PWA are incapable of signalling to their interlocutor that a silence will be part of a TCU. This, in turn, suggests that PWA's silences will lead to interruption from their CP or pressure to fill the silence. Yet, as demonstrated here, PWA can show when they require extra time and when they require assistance with their utterances, dispensing with the need for such guidance.

7.2.2 Silence and Turn-Holding in Repair Sequences

A novel finding of this study was that PWA's usage of silence in self-repair sequences did not substantially differ from neurotypical usage, with PWA and CP using and treating silences in an unmarked manner. In neurotypical repair sequences, while there is limited research on the presence of silence in repair, it has been noted that silence is a regular feature of self-repair (Kitzinger, 2013; Schegloff, Jefferson, et al., 1977) and Levelt previously highlighted that the editing phase of neurotypical repair sequences were characterised by the presence of pauses (1983, p.70). Aphasia has been shown to have a detrimental impact on PWA's ability to self-repair and PWA's repair efforts were found to become more frequent, protracted and challenging (Booth and Swabey, 1999; Ferguson, 1994; Laakso, 1997; Wan and Liao, 2018; R. Wilkinson, 2015). While this was also the case in this study, silence usage did not appear to be treated as functioning any differently to that of neurotypical talk. Laakso (1997) also found that people with fluent aphasia initiated self-repair in the same manner as neurotypical speakers, including features such as silences, among others to indicate their repair initiation.

An additional finding in this study was that turn-holding across silences was a feature also present in PWA's self-initiated, self-repair and word searches. The use of turn-holding devices allowed PWA to identify to the CP that the repair or search was

self-directed and that the silence belonged to the PWA as part of their turn. This made the silence an inappropriate location for the CP to take a turn or assist in the repair/search. Alongside turn-holding techniques, PWA were also found to display the progression of their search or repair to the CP, juxtaposing this with silence, or using silence to do so. As such, PWA were shown to display sensitivity to the opportunity for turn-loss that silences may provide. This finding reinforces the perspective seen in current literature that there is a preference for self-repair, and that this preference is maintained within conversations with PWA (Laakso, 1997; Penn et al., 2015; R. Wilkinson, 2015). By holding their turn over a silence and claiming it as part of their turn, PWA display a commitment to completing their current turn-at-talk and hence their repair.

When turn-holding features prior to a silence are absent this recruits the CP into the repair sequence. It was shown that PWA can use silence in combination with gaze, gesture, and speech perturbations to signal difficulty with a repair sequence and invite the CP into the repair. Gaze has previously been identified as one way in which PWA can seek their CP's assistance with the production of an utterance, particularly a repair (Laakso, 2003; Laakso, 2020). The findings in this research show that silence is a component aspect of such non-verbal assistance seeking. It was shown that when PWA seek mutual gaze and use pre-beginning behaviors interspersed with silences to demonstrate difficulty with their turn and invite assistance from their CP. Gaze directed away from their CP suggested that PWA's repair attempts were self-directed and, in most instances, CPs did not assist the PWA when this was the case. If PWA are unable to, or simply did not initiate repair, CP may do so for them following a silence.

An alternative perspective on this use of silence would suggest that, rather then silences being used functionally, to seek assistance, they instead arise out of a PWA's inability to produce a repair. This inability leads to the CP assisting through the production of a candidate repair, which serves as a preferred response in these silences (Laakso and Godt, 2016). However, as PWA have been shown to use turn-holding features when they are attempting to self-complete a repair or search, it would follow that an abandonment of a repair, or at least the self-directed aspect of it would dispense

with such turn-holding techniques so as to allow space for the CP to take a turn. This then leads to the CP taking a turn within the silence and assisting in the repair through candidate completion. This suggests that when PWA face difficulty finding a word or repairing their talk, they are able to signal when they require more time from their CP and when they need assistance.

Therefore, allowing silences to prolong during repair and word searches is not a beneficial activity unless the search-initiator indicates that they are committed to completing the search themselves while displaying no difficulty with the repair/search. When a PWA has sought assistance during a repair/word search, a CP allowing a silence to prolong instead of assisting the PWA will impact the progressivity of the talk. This may cause the PWA to undertake further interactional work in order to complete the search themselves. Should the PWA be unable to complete the repair, an absence of response when assistance has been sought can lead to extended silences.

7.2.3 CP's Treatment of Silences in Repair Sequences

An important finding of this study is that silences in repair sequences are also used and treated by CPs in a neurotypical manner. Frequently, CPs leave a silence before initiating repair, often around 700 ms or greater as shown in Section 5.1.2, 5.2.1 and 5.2.2. As demonstrated by Kendrick and Torreira (2015), this is the same allowance of silence that occurs within neurotypical repair sequences in order to provide the speaker of the trouble source an additional opportunity to undertake the preferred self-repair (Schegloff, Jefferson, et al., 1977, p. 374). That this usage of silence is present here, suggests that CPs treat PWA as capable of responding to silences in a neurotypical manner.

It also suggests that CPs are still adhering to the preference for self-completion of repair that is found in neurotypical conversation, even in light of the presence of aphasia. Other research has also shown that PWA also demonstrate a preference for self- over other-correction (Laakso, 1997; Penn et al., 2015; R. Wilkinson, 2015). In accordance with present results, Barnes and Possemato detail that PWA were provided "given time to self-repair and find words" regardless of whether the PWA was able to

complete the research or search (2020, p.282). This again shows that CP's use of silence in conversations with PWA mirrors that of neurotypical conversations.

It is possible that this allowance of silence by CP's also occurs as the CPs are attempting to comprehend the PWA's trouble-source turn, as Kendrick (2015) suggests, as a search for late recognition of the prior turn. The CP is trying to comprehend the content of the PWA's utterance, which in many cases is unclear or contains neologisms, perturbations, and apraxic or dysarthric speech. This is demonstrated by the CP's withdrawal of gaze during an inter-turn silence prior to other-initation of repair. Thus, silence can be required by the CP in order to attempt comprehension of the PWA's turn, while also allowing space for the PWA to self-repair.

Laakso noted that when interlocutors assist in the production of a repair, they attempt to provide the best interpretation of the PWA's turn in a way that reduces the effort required from the PWA (Laakso, 2020, p. 262), as seen in studies by Milroy and Perkins, (1992), Goodwin (1995), and Heeschen and Schegloff (1999). The current study also found that when CPs offer candidate repairs, they move from weaker to stronger versions of repair during the sequence as information unfolds, allowing silence in between each initiation as space for the PWA to complete the repair sequence.

The fact that PWA do not regularly make use of the silence provided by CP to initiate a self-repair does not necessarily mean that they are incapable of doing so. While this may be the case for some PWA, the extracts displayed here show that some of PWA's turns that result in other-initiated self-repair have an absence of turn-holding features. This could indicate that PWA either are not aware of the trouble with their turn, cannot identify the precise cause of it, or simply are choosing not to address it. In the examples presented in Section 5.2.1, each of the above appear to be possible explanations as to why PWA do not self-repair, and instead, following a silence, their CP offers a candidate response to the PWA.

7.3 Processing Time and Silence

The final section of this chapter addresses the objective of understanding how silence may be an indicator of an internal mental process occurring for PWA, such as the processing and production of talk. It discusses how PWA's silences, when produced with certain verbal, vocal, or gestural indicators before during or after the silence can be indicators of them doing thinking, undertaking word selection, and showing understanding to their CP.

7.3.1 Silence as Doing Thinking

A significant finding of this study was that PWA account for silences by displaying or claiming that they are doing thinking. PWA do this by using both embodied and vocal thinking practices, often in combination with one another, to account for the absence of talk where it is due during their turn.

It was not possible to fully determine whether these displays of embodied and vocal thinking are legitimate portrayals of the PWA actually thinking, i.e. undertaking the processing and production of words, or a performance designed to display to their CP that thinking is occurring as an account for the presence of silence and the difficulty they are experiencing in producing talk. This is because there is not enough evidence within the talk itself to definitively show which of these is the case. In some instances it looks like both actions are occurring simultaneously, while in others it varies between one or the other functions depending on the(PWA and) the context of the talk.

As there is a preference for the minimisation of silence within talk (Sacks et al., 1974), these devices allow PWA to make relevant the silences in their talk and display to their CP that they are working on word-retrieval or production, rather than appearing as having trouble and allowing silences to prolong. Through the structuring and timing of these displays of thinking, it is clear that PWA do direct these displays to their CPs as an embodied social practice. This is seen in extracts where the CP's gaze returns to the PWA during a silence which prompts the display of embodied thinking. CP were also shown to treat them as cues to allow silence as necessary and relevant to the

ongoing talk.

As these features also signal to the CP that the PWA is still working on the response, they have the added benefit of also holding the PWA's turn. An implication of this is that PWA are able to demonstrate to their CP when they require more time to communicate. Using displays of embodied and verbal thinking, whether legitimate displays or not, can be beneficial for PWA. Not only are these displays a further way to hold their turn while there may be difficulty with production, but also if used to mask production issues,then this allows PWA to portray themselves as more competent communicators than they would appear to be if displays of thinking were not used. Furthermore, use of these features allow PWA to show when they require additional silence to form their responses, but also account for them as necessary.

PWA use these devices to mask issues they are having with the production of their turn and prevent any "opportunistic" turns being taken by their CPs (R. Wilkinson, 2007). Aphasia is known to cause word production issues (Brookshire, 2007), which can lead to PWA appearing as incompetent communicators (Barnes and Ferguson, 2015; R. Wilkinson, 2007). PWA appear to be treating some silences as highlighting their incompetency as communicators, and as a potential point of turn-loss. Therefore, they use embodied and verbal thinking displays to mask their linguistic deficits which are emphasised by the silences marking the word production issues. Such displays of doing thinking encourage the CP to remain attentive to the PWA and to not take a turn during PWA's silences, as seen in the extracts in section 6.1.

In many cases, the displays of doing thinking are not only produced as a turn-holding signal to the CP. As evidenced by the PWA's eventual completion of their turn and, in many cases, the absence of further repair work following the displays of doing thinking, PWA may be using the silence as space to process talk and produce their turn. The production of embodied or vocal practices may have assisted them through some trouble with lexical production or processing. Prior research has suggested that production of gestures may be used to aid lexical retrieval (Feyereisen, 2006; Frick-Horbury and Guttentag, 1998; Krauss et al., 1996; Pyers et al., 1998), therefore such displays of doing thinking can also function to aid PWA's lexical retrieval. This would then imply that the display of thinking resulted from the PWA actually using the

silence as time to think and work on producing their turn.

This research suggests then that the displays of thinking used by PWA in conjunction with silence are produced for both interlocutors. The combination of silence and displays of doing thinking appear to have benefits for PWA. They provide time for PWA to find words, keep their turn, and portray themselves as competent communicators. It is clear that displays of doing thinking aid PWA in holding their turn beyond a silence and that the PWA is again shown to be treating the presence of silence in their turn as having the potential for turn loss. Therefore, more time does not have to be actively allowed by the CP as PWA have conversational signals available to them that can indicate when they require more time to complete their turn.

7.3.2 Silence as Word Selection

Silence has also been shown to preface PWA's selection of a term that may result in issues with affiliation in the case of delicate utterances. The inclusion of silence allows the PWA space to present their stance towards the upcoming talk through a signal of affect in order to attempt to mitigate this disaffiliative impact through devices such as humour. The silence also prepares the CP for the arrival of the inapposite term. Inclusion of a silence provides a hitch in the production of the planned turn, but the lack of repair indicators and fillers suggest that this is not due to trouble in the production of the turn, or the commencement of a word search, but is instead to a deliberate halting by PWA to display their consideration or selection of the rest of their turn.

Furthermore, the fact that the silence, and any signal of affect such as smiling or gesture to cover the mouth, regularly occurs before the delicate term, with no markers of word-finding difficulty, suggests that the silence is a deliberate part of the PWA's turn rather than any indicator of the PWA having any processing trouble. A delicate silence then, is distinguished from a silence preceding a word search, as rather than the PWA experiencing trouble with word retrieval, there is instead anticipated 'trouble' with the CP's reception of a forthcoming term that is possibly disaffiliative.

A word selection silence allows space for the PWA to show that a stance is being portrayed towards the upcoming talk. Lerner (2013) showed that in neurotypical con-

versation, a speaker can allow a silence before producing a potentially delicate term and through this provide a display of unease regarding the term. Through the use and framing of the silence, the PWA is also able to show themselves to be aware of the potential disaffiliative impact of their following talk. The display of hesitance through the silence and the inclusion of demonstrations of humour prior to or during the silence then act to mitigate the disaffiliative impact, and some of the trouble the term may cause. This demonstrates then that PWA are able to recognise when a term may be potentially inapposite for their CP, and plan a strategic inclusion of silence into their talk as a way to draw their CP's attention to something problematic occurring and use it as a space to display a stance towards their forthcoming talk.

It is not entirely clear whether the inapposite term that is produce is that which was planned or whether it was selected by the PWA during the silence. As the silence and display of affect occur before the inapposite term, this suggests that the term was already selected at this point. Furthermore, the silence is followed by a term that is produced without any trouble, such as speech errors or perturbations, which also shows that the silence was not due to any difficulty in word production or issue with progressivity, but instead a deliberate inclusion within the turn. Therefore, it appears likely that this is only a performance of consideration. However, based on the talk alone it is not possible to determine whether the PWA is actually considering the forthcoming term or merely producing a performance of 'considering'. This is a limitation of Conversation Analysis which will be further discussed within Chapter 8

7.3.3 Silence as Understanding

A further novel finding of this research was that silence was shown to be an important part of PWA displaying their understanding of information provided to them by their CP. Walker, Thompson and Watt (2016) previously investigated PWA's displays and claims of understanding and found that *oh*-prefaced turns are used and treated as a PWA's display of understanding while those without *oh*-prefacing only claim the PWA's understanding. The current study found that CPs only treat PWA's *oh*-prefaced turns as a display of understanding if there is a silence preceding the

change of state token. Otherwise, CPs treat the change of state token as the PWA only claiming understanding and pursue the topic until the PWA provides a display, or show a failure to comprehend the information provided.

This finding diverges from that of Walker, Thompson and Watt (2016). While they found that PWA's *oh*-prefacing occurs in the same way as neurotypical individuals, prior research on change of state tokens have found that silence does not frequently occur between the information offered by a speaker and the respondent's change of state token in neurotypical conversation. Instead, such tokens are often latched to, or in overlap with the information provided, which may be due to the speaker who issues the token having previously assumed the role of questioner (Heritage, 1984a, p. 339). However, the results from this study are contrary to those above as many of PWA's change of state tokens occur in conjunction with a silence that extends beyond the typical micro-pause seen in Heritage's (1984a) study.

It is possible that silence prior to a change of state token occurs as the PWA has not taken on the position of a questioner before being provided information by their CP. In some examples presented in Section 6.3, the CPs offer information without being questioned by the PWA, and so the PWA may not be in the state of "prospective readiness" to receive information (Heritage, 1984a, p. 330). However, there are also a number of examples where the PWA does take up the position of questioner, yet silence still occurs before they acknowledge the information provided by the CP. This would imply that the presence of silence is universal for PWA's when displaying understanding regardless of whether they are the questioner or not. It could also imply that such silence may be a result of aphasia. The absence of examples in the data-set in which an overlapping "oh" is presented suggest that silence is a significant aspect of PWA presenting a display of understanding when they are unable to add further talk.

What is particularly interesting here is that CP's are diverging from the neurotypical treatment of *oh*-prefacing (Heritage, 1984a, cf.). CPs treat PWA's silences as acceptable, unmarked, part of displaying comprehension of the information they are receipting with the change of state token. When PWA produce change of state tokens without a preceding silence (i.e. those that are produced in a neurotypical manner) they are instead treated as a PWA's claim to understanding rather than a legitimate

display. This could be because the silence allows space for the PWA to orient to the information being provided physically, such as by turning to a referent or nodding, or allows additional time for them to form a more comprehensive verbal response that displays their understanding. When the silence is absent prior to the "oh" token, so too is a physical or further verbal demonstration of the PWA's comprehension.

This is one instance where CPs appear to diverge in their treatment of PWA's silences from that of neurotypical conversation and one place where the healthcare guidance may be helpful for conversations with PWA. Silence has been shown to be an important part of a PWA displaying their understanding of information provided by the CP. Promoting the acceptance of silence in PWA's talk then could assist with PWA's displays of understanding being correctly interpreted by their interlocutors.

7.4 Chapter Summary

This chapter has discussed the main findings of the current research and examined them in light of existing research on silence and people with aphasia. It has shown that silence is a preserved resource for PWA, having numerous functional uses that PWA can employ within their everyday talk. It has also demonstrated that CPs are receptive to these uses of silence and are capable of allow more time if the PWA has signalled it is required. This chapter has further shown that PWA are capable of accounting for the presence of silence at various points within their talk by using turn-holding devices, or masking the silence through displays of embodied thinking. Finally, this chapter has demonstrated PWA's usage of silence as part of claiming and displaying purposeful, social representation of internal mental processes, such as doing thinking, word-selection, and showing understanding.

Chapter 8

Conclusion

This chapter provides a summary of the work covered within this thesis and considers the significance and implications of the study. It details how the research has achieved the aim and objectives of the research, as set out in the Introduction. Finally, it considers what the contribution is to the current literature in the relevant fields, details the limitations of the study and suggests what future directions research on this area of inquiry might take.

8.1 Summary of the Research

In response to the healthcare guidance and absence of research on silence in talk with people with aphasia, the aim of this research was to determine how people with aphasia and their communication partners use and understand silences within everyday conversations. This research has analysed the use and interpretation of video recorded silences within conversations between people with aphasia and their communication partners using Conversation Analysis. It has investigated the difference, in interactional linguistic terms, between the occurrence of silence as a reflex of additional linguistic processing time, versus its use as a purposive communicative practice.

This study has demonstrated multiple ways in which PWA use silence to convey communicative content, and that their silences are treated by their CPs as having interactional import. Such communicative uses of silence by PWA include:

- As part of a dispreferred response, such as disagreement or rejection.
- Signalling difficulty with their turn.
- As a space in which to invite their CP to co-complete utterances, such as by offering a candidate solution to a word search or by producing an other-repair.
- As a space in which to produce a display of affect prior to a potentially inapposite term.
- To provide a legitimate display of understanding.

CPs treat the majority of PWA's silences in the same way as has been shown with neurotypical conversation, with the primary exception being silence and PWA's change of state tokens. CPs have also been shown to treat PWA as being capable of responding to silences in a neurotypical manner. Furthermore, PWA were shown to respond to silences in neurotypical ways, including:

- As a location in which PWA are more susceptible to loss of turn, such as during longer mid-turn silences, repair, or in a word search.
- As something which should be minimised within talk due to the delay in progressivity it causes.
- As providing evidence of a lack of their CPs alignment or affiliation and foreshadowing a dispreferred response.
- As an indicator that ambiguity may be present in their own prior turn.

Where silences do occur as a result of aphasia, PWA recognise the interactional impropriety and can make attempts to account for these silence using turn-holding devices, or mask the silence through producing a display of embodied thinking. It has further been shown that silence and the way it is accounted for is an essential part of PWA claiming to undertake certain mental processes, such as thinking, word selection, and displaying understanding. Finally, it was determined that silence does not always have to occur as part of a PWA's turn, as some PWA can respond without the presence of silence within their talk. The findings of this research, therefore, have implications for people with aphasia, their communication partners, and healthcare professionals, which are addressed in sections 8.1.1 and 8.1.2 below.

8.1.1 Implications for PWA and CPs

This study has shown that PWA's use and understanding of silence is not impacted by the damage resulting from aphasia and, therefore, is a resource which can still be utilised by PWA within conversation. PWA retain the understanding of the function of silences within everyday conversation, and they have available extensive resources to account for the presence of silences within talk.

These findings are positive for PWA as they demonstrate that PWA's capabilities surpass their impacted speech and that they have a greater number of communicative resources and devices available to them has been indicated by prior research. For example, PWA have resources to show when they are committed to completing their turn past a silence, and that their CP should not take a turn or assist the PWA, unless otherwise indicated. For silences that may imply that the PWA is having trouble producing their turn and is thus impacting their social image as a competent communicator, PWA can use displays of doing thinking to mask this. This means that PWA are capable not only of using silence in a neurotypical manner, and in the ways listed above in Section 8.1, but that they can also use silence in a novel way to downplay the communicative difficulties resulting from aphasia.

People with aphasia have ways to account for silences that do occur within their talk which may result from aphasia, such as some turn-initial or mid-turn silences, and so are capable of demonstrating when they require more time within their talk. However, this capability can vary according to type and severity of aphasia. This is something that communication partners should be receptive to, particularly if they are adhering to the current healthcare guidance on silence and aphasia. CP's should be aware that PWA do not always require extra time, and that they may be able to show when they do. Silence is not always a negative or detrimental part of communication, and does not always occur as an artefact of aphasia.

Acceptance and understanding of silence is not a simple task and is context-sensitive, requiring CPs to attend more closely to the non-verbal aspects of talk than they might do in neurotypical conversation. This is especially important when ascribing action to PWA's turns-at-talk. The presence of phonological and semantic paraphasias

as well as neologisms with in PWA's talk can result in turns that are unintelligible for CPs and prevent action being easily ascribed. This can result in PWA's turns being disregarded and result in a loss of agency for PWA. By being receptive to the placement of silence and its surrounding context, CPs may be able to use silences to aid action ascription of PWA's turns. Alternatively, finding a mutually agreed technique to signal that a lack of absence ascription has occurred would be beneficial in maintaining the PWA's status as an equal and competent communicator. Either of these would support PWA and their CPs to avoid semantically challenging turns being disregarded, and assist in PWA maintaining their agency within talk-in-interaction.

8.1.2 Clinical and Healthcare Guidance Implications

The findings of this study suggest that PWA's understanding of silence has not been impaired by aphasia, though its usage may have been to varying degrees, depending on the impact of the aphasia. PWA do have compensatory strategies available to mitigate the impact of aphasia on silences. Therefore, one implication of this study for clinical practice is that during speech and language therapy, SLTs can work with PWA to develop the preserved resources of silence as a communicative device. This is alongside the other additional resources found in this research of accounting for silences via turn-holding devices and using displays of vocal and embodied thinking. This could be applied in the same way that gesture and other AAC approaches are emphasised and developed on as an alternative resource during therapy.

As shown within this study, understanding and producing a response is not an issue for some people with aphasia and their silence lengths and amounts can reflect that of neurotypical individuals. In such cases, PWA do not require more time. Having healthcare guidance which implies that silence will always be produced at the start of PWA's turns is misleading and encourages misinterpretation of a preserved resource. Encouraging CPs to disregard PWA's silences as a mere artefact of aphasia dismisses the communicative content imparted by the inclusion of that silence.

While giving additional time for PWA's communication appears to be a useful suggestion on the surface, it can lead to potential issues with intersubjectivity should

silences be misinterpreted. For example, allowing silences to prolong would not be beneficial in cases where the PWA is unable to produce further talk and is soliciting assistance from their CP. If the CP allows additional silence in these circumstances, the silence may be treated as rejecting the request for assistance. Therefore, allowing silences to prolong, as per the healthcare guidance recommendations, can lead to PWA misunderstanding their interlocutors turns as being disaffiliative and disaligned. This may then cause PWA to attempt to undertake further work to promote the progressivity of the interaction.

There is also a significant challenge to adapting to a way of communicating that disobeys social interactional norms of the preference for avoiding gaps and silence within interaction. Silences of greater than 300 ms have interactional relevance to the communication and greater than one second of silence can indicate trouble within interaction (Jefferson, 1989). Thus learning to adapt to allowing greater silences within talk is a complex interactional task which, without training, can be a challenge to achieve.

Some of the findings from the examination of preferred responses 4.1.2, where silence sometimes occurs as an artefact of aphasia, and displaying understanding 6.3, in which silence is part of a PWA providing a legitimate display of understanding, partially support the healthcare guidance. In these instances, it is important for the CP to accept the silences as part of PWA's talk. However, as shown throughout this work, PWA do not always require additional time to respond. This suggests that having healthcare guidance that treats all of PWA's silences in the same way may be detrimental to some PWA. As the guidance contained within the SCA has been generalised via adapted healthcare guidance to be applicable to all patients with aphasia regardless of their communicative ability and competence, this limits the potential usefulness of the guidance, because it may not be relevant to all people with aphasia. Tarring all PWA with the same brush is not beneficial, particularly as communicative abilities vary from person to person, and within each person on a daily basis.

Therefore, having healthcare guidance that provides broad, all-encompassing advice is counter-productive as it will likely lead to increased misinterpretations of PWA's speech if caution is not applied to this guidance. The variability of aphasia's potential

impact on PWA's use of silences should be acknowledged and PWA's preserved abilities should also be emphasised. Thus, this research demonstrates that current healthcare guidance requires further development so that it recognises the complexity of aphasia, and of silence as a communicative device.

8.2 Limitations and Directions for Future Research

This section discusses the limitations of this study and the avenues for further research which could be undertaken to address some of the unanswered questions of this thesis.

The findings from sections 7.3 on doing thinking, word selection, and doing understanding, demonstrate a limitation of the methodology of CA. CA research often avoids any claims to be able to access the internal mental processes that are occurring as someone speaks. The only evidence provided by naturally occurring data is that which occurs within the talk, which is not reflective of participants' actual internal mental processes. However, as other research has shown (Bolden, 2009; Hofstetter, 2020; T. Walker and Benjamin, 2017) and as shown within this thesis, there is evidence within speakers' talk and their multimodal features of conversation of portrayals of such mental actions of doing thinking occurring, including through displays of embodied and vocal thinking, word selection, and understanding.

Interlocutors also only ever have access to the content of what another speaker makes externally relevant through talk, gesture, gaze and other multimodal features of talk. Interlocutors must, like analysts, take at face value a speaker's claim or display that any of these mental processes is occurring, including whether their interlocutor's silence is due to an internal process occurring. Therefore, regardless of whether some internal 'thinking' process is occurring or not, there are clearly points within talk, or in this study within silence, where such processes of thinking, word selection, and understanding sometimes do appear to be occurring. These should not be disregarded during analysis.

A challenge of using CA analyse talk with people with aphasia, and potentially

other communication difficulties, is that conversation is not mutually constructed when one party may be unable to contribute to action construction or ascription equally, or at all in some cases. CA views talk as collaboratively constructed and action as mutually achieved by participants displaying their understanding of the prior talk to each other through their responses in order to confirm intersubjectivity. However, establishing the meaning of a silence is a complex task when meaning is viewed as jointly constructed through talk, yet one party is limited in their abilities.

As researchers, we may need to adjust how we approach CA with communication disorders and acknowledge that meaning and action is not always jointly constructed. There is potential for meaning to exist in a PWA's turn that is reshaped or disregarded by another speaker, which PWA may be unable to correct, resulting in PWA's meaning and action becoming lost. Therefore, as analysts, we must be mindful that action ascription and meaning of a turn does not always lie in only the response to a turn. As other work has shown (Auer, 2021; Deppermann, 2013; C. Goodwin, 2000; C. Goodwin, 2003; M. H. Goodwin and C. Goodwin, 1986; Mondada, 2019), focus should be placed not only on examining talk, but also on multimodal features occurring outside of talk, such as gesture, facial expression and, as this thesis has examined, silence during conversation.

As silence has been shown to be a preserved resource for PWA, this raises the question of what other resources are preserved for people living with aphasia. Further work could investigate other areas of non-verbal communication and also examine the use of silences within the talk of people with other communication disorders in order to determine whether the findings of this thesis may be generalisable to other disorders. This will also allow us to uncover what other devices beyond talk that are used by people with aphasia, and other communication disorders to create meaning in interaction.

Following the need for emphasis on the non-verbal aspects of interaction, one limitation of this study then, is that during the data collection phase, audio-only data was accepted from participants who did not wish to video-record. This option was offered to participants to make sure that they felt comfortable taking part in the study and to ensure enough data was collected for the project. While it was ethically correct to offer this choice, this data later had to be disregarded. This was due to the necessity

of having a visual record of what was occurring during the silences to note features including facial expression, gaze direction gesture, inaudible in-breaths, and many other non-verbal features of interaction that were subsequently required for a full analysis. As explored above, these features are essential for understanding the content and action of PWA's turns. Therefore, future work should focus on collecting video-only recordings in order to produce fruitful data for analysis.

Silence as a communicative device, like gesture and other paralinguistic features, has been shown to not be impacted by the damage resulting from aphasia,and therefore is a resource which can still be utilised by PWA within conversation. This raises the question of what additional ways PWA may make use of communicative silences. While this study has examined some of the uses of communicative silences, to develop a full picture of how silence is used by PWA, additional studies will be needed to investigate what additional functions PWA can use silence for and how silence may also be used as an alternative communication strategy through therapy such as conversation partner training.

Due to the heterogeneity of aphasia, the findings within this thesis must be treated with some caution as they may not be applicable to all PWA. While this research has attempted to study the varying forms of aphasia where possible, since no two people have the same communication difficulty, communicative abilities will always differ. This research has tried to highlight the capabilities and limitations of the differing types of aphasia offered to me by the participants who volunteered for this study. This was done by, where possible, including extracts in chapters 4, 5, and 6 that represented the different varieties of aphasia. As such, the analysis and findings of this thesis have not been grouped by type or sub-classification of aphasia, instead exploring the limitations and capabilities of PWA beyond what the traditional categories suggest. Although variance was seen between the capabilities of PWA, more often than not, all of the people.within this study demonstrated the abilities observed within the analysis and findings of this study to some extent.[1]

[1]This includes, for example, the functional uses and understandings of silence, turn-holding techniques, preference for self-repair, ability to invite other-repair and displays of thinking shown in the chapters above.

Furthermore, the healthcare guidance on silence and aphasia is also generalised to to treat each person affected by aphasia in the same way. Therefore, future research could examine how PWA respond to a CP who has been trained to provide more silence in everyday conversations in order to determine both the feasibility and the full impact of the current healthcare guidance during conversations with people with aphasia. Additionally, PWA's overlaps could be investigated to determine whether their productions of overlaps in conversation mirror that of neurotypical talk, or are impacted by the presence of aphasia.

Another avenue for future work that undertaking this study has raised, was regarding silences that occur mid-turn. There is limited literature on mid-turn pauses in neurotypical conversation, so the reason for their occurrence within talk is unclear. This thesis has added to the literature on PWA's mid-turn pauses. It is possible that in conversations with PWA, mid-turn silences serve to offer the PWA time to work on retrieving and producing the PWA's intended lexical content. However, this is speculative and more research is needed to determine whether these silences are being used as space to allow the PWA to finish constructing their utterances. Further research could be undertaken to understand the function of mid-turn silences within neurotypical talk so that these could be compared with the findings here.

Finally, this research was limited in its understanding of why CPs diverge from a neurotypical treatment of *oh*-prefaced turns when conversing with PWA. Addition research could investigate why the inclusion of silence in a PWA's *oh*-prefaced turn is treated as a legitimate display of understanding, while absence of silence is only treated as a claim is required to determine why this divergence occurs. It would be useful to compare more closely neurotypical speakers' productions of change of state tokens, with PWA's productions in order to identify further differences between the interlocutors' treatments of these *oh*-prefaced turns.

8.3 Contribution of this Study

This thesis has contributed to the current literature on aphasic communication, showing that PWA are able to use silences in a communicative manner. It has demon-

strated that PWA can use silence to convey communicative content in multiple ways and that PWA are capable of accounting for the presence of silence when it does occur within talk. It has further shown that silence and the way it is accounted for is an essential part of the PWA claiming to undertake certain mental processes, such as thinking, word selection, and displaying understanding. As a consequence, this thesis has demonstrated that the content of the healthcare guidance on silence and aphasia requires updating to reflect the findings of this work.

Furthermore, this work has also contributed to the body of knowledge on the understanding of the role of silence in everyday conversations, and demonstrated the limitations of the methodology of Conversation Analysis when analysing the talk of people with communication difficulties. Finally, and perhaps most importantly, it has determined that that people with aphasia have more communicative abilities and resources available to them than research so far has suggested, and that their communication partners are generally responsive to PWA's social actions involving silence during everyday talk-in-interaction. Silence is a powerful preserved resource for PWA, one which should not be overlooked in everyday talk.

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Appendices

A Ethics and Participant Recruitment

A.1 Ethics Approval Letter

Downloaded: 25/02/2019
Approved: 25/02/2019

Isabel Windeatt
Registration number: 180136418
Human Communication Sciences
Programme: Human Communication Sciences

Dear Isabel

PROJECT TITLE: Understanding the use of silence in conversations with people with aphasia.
APPLICATION: Reference Number 024524

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 25/02/2019 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 024524 (dated 05/02/2019).
- Participant information sheet 1055696 version 2 (05/02/2019).
- Participant information sheet 1055699 version 1 (31/01/2019).
- Participant information sheet 1055698 version 2 (05/02/2019).
- Participant information sheet 1055697 version 2 (05/02/2019).
- Participant consent form 1055701 version 2 (05/02/2019).
- Participant consent form 1055700 version 2 (05/02/2019).

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

Traci Walker
Ethics Administrator
Human Communication Sciences

A.2 Ethics Amendment Approval Letter

Health
Sciences
School

Dean
Professor Tracey Moore

School of Nursing and Midwifery
Barber House Annexe
3a Clarkehouse Road
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Telephone: +44 (0) 114 222 2076
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Dear Isabel

Project Title: Understanding the role of silence in conversations with people with aphasia

I am writing to confirm approval of your request for minor amendments to your ethics submission Number 024524 as detailed in the Notice of Amendments Form submitted on 16th September 2020

Yours sincerely

Ethics Lead

A.3 Letter to Clinic Facilitator

Department of Human Communication Sciences
362 Mushroom Lane
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Head of Department
Professor Patricia Cowell

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Name
Address

Date

Dear Name of Facilitator

I am a PhD student in the Department of Human Communication Sciences at the University of Sheffield conducting research into how people with aphasia and their relatives/partners use silence in conversation. My aim is to improve the understanding of how aphasia affects communication and investigate whether silences are being misunderstood in everyday conversation between people with aphasia and their relatives/partners.

I am looking for volunteers with aphasia and their relatives or partners who would be interested in taking part in my research and I am writing to request your assistance with this as the facilitator of X clinic. I would be very grateful if you could provide assistance with the identification of potential participants for my research.

If agreeable to you, the proposed process would be as follows. You would identify potential participants from your past or current clinic attendees who meet the eligibility criteria outlined in the attached information sheet and who might be interested in taking part in the research.

For those currently attending your clinic, I would like to visit one of your group sessions and provide a brief presentation about my project in order to see whether anyone would be interested in volunteering to take part.

For those not currently attending the clinic, I will write to them to enquire whether they would be interested in participating. I would appreciate if you could provide a cover letter which I could include with my letter, explaining that you have suggested they might be interested in participating in my research.

I have provided an outline of my project and my approach to participant identification and recruitment in the attached information sheet. I would be very happy to discuss this further with you if you wish and I can be reached on the contact details provided in the attached Information Sheet.

Thank you for your time.

Yours sincerely,

Isabel Windeatt
Postgraduate Research Student
Department of Human Communication Science

A.4 Information Sheet - Clinic Facilitator

Information Sheet - Facilitator

What is the project about?

Project Title: Understanding the use of silence in conversations with people with aphasia.
Researcher: Isabel Windeatt

My PhD research project investigates how people with aphasia and their relatives/partners use silence in everyday conversation and aims to determine whether these silences are being misunderstood. I will investigate and compare the difference between how silence is used as a purposive communicative practice versus its occurrence as a reflex of linguistic processing time. The results of this research will improve the understanding of how aphasia affects people's communication and will provide valuable insight into how people with aphasia and their relatives/partners communicate, which can then be used to inform future therapy and healthcare guidance.

Who am I looking for?

I am looking to recruit a maximum of 10 pairs of participants this study. The pairs will include a person with aphasia and a relative/partner of the person with aphasia.

The inclusion criteria for people with aphasia includes the following:

- Aphasia being diagnosed by a qualified speech and language therapist.
- Aphasia caused by a stroke, a traumatic brain injury or a brain tumour.
- Having aphasia for 6 months or more.
- Aged 18 or over.
- Suffer no other past or current speech or language difficulties or cognitive defects, in addition to aphasia.
- Native English speakers.

The criteria on which people with aphasia will be excluded from this study include patients with aphasia as a result of another neurological disorder (e.g. dementia, infection, epilepsy), patients for whom English is not a first language and patients who suffer from uncorrected hearing issues (such as an auditory processing disorder).

The inclusion criteria for the relative/partner include:

- Aged 18 or over.
- Suffer no past or current speech and language difficulties or cognitive defects.

I appreciate that you may not have information about relatives/partners. The Expression of Interest forms which will be provided to potential participants will screen for this information in the section that the relative/partner has to complete.

What would I have to do?

As explained in my letter, I would be grateful if you could identify potential participants from your past or current clinic attendees who meet the eligibility criteria outlined above and who might be interested in taking part in the research.

I would then like to attend one of your clinic sessions to introduce myself to the potential participants and present the project briefly using an aphasia-friendly presentation. I will provide group members

with a letter and Expression of Interest form requesting their assistance with the research as well as Information Sheets which will detail what participation will involve. They will be encouraged to take time to consider the research and discuss it with any friends and/or relatives to determine whether they wish to participate in the study. The information sheet will advise potential participants to direct any queries to me and will explain how the participants can get in touch with me.

For people who are not currently attending the clinic but you have highlighted as potential participants who are happy to be contacted about participating in research, I will post the recruitment letter, Expression of Interest form and the Information Sheets to them to ask if they would like to participate. I would be grateful if you could provide a cover letter which I could include with my letter, explaining that you are helping to identify potential participants for my research and have suggested they might be interested in participating.

What will the participants have to do?
The participants will undergo three sessions of video or audio recording, depending on their preference, with each session lasting approximately 20-30 minutes. These will be spaced out over 6 to 10 weeks so that the times arranged can be suitable for the participants. The recordings will take place in the homes of the participants or in the Department of Human Communication Sciences at the University of Sheffield depending on where the participants feel they would be most comfortable.

How do participants sign up to take part?
Participants will return a completed Expression of Interest form either by post using a stamped, pre-addressed envelope I will provide or they will hand in their completed forms at the next clinic session. I will then contact them to arrange a meeting to answer any questions they have about the study and go through the information sheets with them using supported conversation techniques. Informed consent will be obtained from the participants at the first recording session.

What will happen to the data gathered?
All data gathered as part of the research will be held securely and not shared with anyone outside of the research team. I will edit the recordings to produce pseudonymised data sets and then produce anonymous transcripts of the recorded talk for analysis. With the permission of the participants, their pseudonymised recordings will be shared with other researchers and kept for a minimum of ten years. The participants will be able to choose how long the data is retained for. The results of the project will be published and presented to other researchers but the participants will not be identifiable in the published data.

Data Protection
The legal basis we are applying for processing the data is that it is 'necessary for the performance of a task carried out in the public interest (GDPR, Article 6(1)(e)). This project has been ethically reviewed and approved by the University Sheffield's Ethics Review Procedure, administered by the Department of Human Communication Sciences. The University of Sheffield will act as the Data Controller for this study.

Contact details
Please contact me or my supervisor is you have any concerns or would like to discuss the project further.

Researcher
Isabel Windeatt
PhD Student
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: ilwindeatt1@sheffield.ac.uk
Phone: 0114 222 2418

Project Supervisor
Dr Traci Walker
Senior Lecturer
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: traci.walker@sheffield.ac.uk
Phone: 0114 222 2420

If you want to speak to someone who is not involved in the project, you can contact the Head of the Department of Human Communication Sciences:

Professor Patricia Cowell
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: p.e.cowell@sheffield.ac.uk
Phone: 0114 222 2426

If you feel that the University has not dealt correctly with participant's personal data you can complain to the Information Commissioner's Office through this link (https://ico.org.uk/make-a-complaint/)

Thank you for taking the time to read this and for your interest in the project.

A.5 Letter from Facilitator to Potential Participants

Department Of Human
Communication Sciences

Head of Department
Professor Patricia E. Cowell, BA, MS, PhD

362 Mushroom Lane
Sheffield
S10 2TS
United Kingdom

Telephone: +44 (0) 114 222 2418/ 2402/ 2405
International: +44 (0) 114 222 2418
Fax: +44 (0) 114 2222439
Email: hcs-support@sheffield.ac.uk
http://www.shef.ac.uk/hcs

Name
Address

4 May 2019

Dear

I am writing to you from the **Aphasia Centre**.

In the past, you said you would like to be involved in **research**.

Isabel Windeatt is doing some **research** at the University of Sheffield.

Isabel would like to ask **you** to take part in the **research.**

Isabel's information is enclosed with this letter.

Isabel will **ask you** if you want to be involved in the research.

Thank you for helping with our research

If you **do not want** us to contact you about **research**, please phone me on **0114 222 2418**, or email me **j.s.walmsley@sheffield.ac.uk**

Your sincerely,

Janet Walmsley
Speech and Language Therapist
Aphasia Centre

A.6 Letter to PWA

Department of Human Communication Sciences
362 Mushroom Lane
Sheffield
S10 2TS

Head of Department
Professor Patricia Cowell

Telephone: +44 (0) 114 222 2418/ 2402/ 2405
International: +44 (0) 114 222 2418
Fax: +44 (0) 114 222 2439
Email: hcs-support@lists.sheffield.ac.uk
http://www.shef.ac.uk/hcs

Name
Address

Date X

Dear X

I am writing to you and your family member about **taking part** in my **PhD research study.**

I am a **PhD student** in the Department of Human Communication Sciences at the University of Sheffield.

My research is about how **people with aphasia** and their **relatives/ partners** use **silence in conversation**.

My aim is to improve the **understanding of how aphasia affects talk** and to see if **silence is being misunderstood** in everyday conversation.

Please read the attached **information sheet** for more detail about the project.

Would you and your family member like to take part in my research?

1

What it would involve:

- You and a relative or partner will be **recorded** while **having a conversation**.
- You will chat for **20 minutes**.
- There will be **three sessions**
- Taking part is **voluntary**
- You can **stop** at **any time**
- You can **change your mind** at **any time**
- Family members must be **over 18 years old** to take part.

If you are interested in taking part:

- Please complete the **Expression of Interest form**
- Please ask your **relative or partner** to complete their part of the form
- You can **hand in** the form at your next **clinic**
- Or you can **post** it to me in the **envelope provided**

I will then contact you to arrange a meeting.

I look forward to hearing from you.

Thank you for your help.

Yours sincerely,

Isabel Windeatt

Postgraduate Research Student
Department of Human Communication Sciences

A.7 Letter to CP

Department of Human Communication Sciences
362 Mushroom Lane
Sheffield
S10 2TS

Head of Department
Professor Patricia Cowell

Telephone: +44 (0) 114 222 2418/ 2402/ 2405
International: +44 (0) 114 222 2418
Fax: +44 (0) 114 222 2439
Email: hcs-support@lists.sheffield.ac.uk
http://www.shef.ac.uk/hcs

Name
Address

Date

Dear X

I am writing to you as a relative of someone who attends the X Aphasia Clinic or has attended this clinic in the past.

I am a PhD student within the Department of Human Communication Sciences at the University of Sheffield. I am undertaking a study investigating how people with aphasia and their relatives/partners use silence in conversation. My aim is to improve the understanding of how aphasia affects talk and investigate whether silences are being misunderstood in everyday conversation between people with aphasia and their relatives/partners.

To complete this study I need volunteers of pairs of people with aphasia with a relative or partner to take part in my research. I am writing to ask whether you would be interested in talking part in my research project.

Taking part would involve you and your relative/partner with aphasia being video or audio recorded while having a conversation together. The recording session would last for 20-30 minutes, but you can stop at any time if either of you need to. There will be three sessions of recording, each lasting no more than 30 minutes.

I have provided an information sheet to give you more information on my study and on what taking part would involve. If you and your relative/partner would like to take part after reading the information sheet, please could you complete the Expression of Interest form attached to this letter and either ask your relative/partner to hand it in at their next clinic session or you can return it to me in the addressed envelope I have provided. I will then contact you to arrange a meeting.

If you want to ask any questions at any point, I will be very happy to answer them. If you do sign up and then change your mind, that's okay – you are free to withdraw at any time without giving a reason.

I look forward to hearing from you and thank you for your time.

Yours sincerely,

Isabel Windeatt
Postgraduate Research Student
Department of Human Communication Sciences

A.8 Letter to Request Additional Consent

Division of Human Communication Sciences
362 Mushroom Lane
Sheffield
S10 2TS

Head of Division
Dr Judy Clegg

Telephone: +44 (0) 114 222 2418/ 2402/ 245
International: +44 (0) 114 222 2418
Fax: +44 (0) 114 222 2439
Email: hcs-support@lists.sheffield.ac.uk
http://www.shef.ac.uk/hcs

Isabel Windeatt
ilwindeatt1@sheffield.ac.uk

9th September 2021

Dear X and X,

You took part in my **PhD study** *Understanding the use of silence in conversations with people with aphasia* between **April and June 2019**.

Firstly I wanted to say **thank you**, I am very grateful for your time and your help.

I hope you are keeping well.

I am now in the final year of my **PhD**, writing up the **results** of my study.

As part of my study I would like to **include information** about X that is **held by the Aphasic Clinic** at the **University of Sheffield**.

To do this I would like **your permission** for **my PhD supervisor and I** to **access** this information and include it in my **thesis** and **publications**.

All of the information I need is held by the **Phillipa Cottam Aphasia Clinic**.

This information **includes**:

- Age
- Sex
- How long you have had aphasia
- Type of aphasia
- Description of aphasia
- Details on your levels of language ability and comprehension
- Details of your hearing and vision
- Whether you are left or right handed

By allowing me to include this information I would be able to **publish** my work in **academic journals on aphasia**.

This would allow me to **share my findings** with **specialists** in **aphasia**.

This would help me have an **impact** on **future therapy** and **healthcare guidance** on aphasia.

All of your information will **remain confidential**. Your **name** will **not** be used.

No one will be able to identify you from the information included in my publications.

I am **not** asking for permission to access any **medical records**.

If you agree to **my supervisor and I** accessing your **Aphasia Clinic files** and including in it my **thesis/publications**, please can you complete the attached **consent form**.

You **do not** have to send me any information.

You just have to **return** a **consent form**.

Please send the completed consent form in the envelope provided to:

Isabel Windeatt
Division of Human Communication Sciences
362 Mushroom Lane
Sheffield
S10 2TS

I am **very happy** to answer any **questions** you have.

Please **email me** or **call me** on [redacted] if you have **questions**.

If you would like a **paper copy** of this letter or the consent form, please **let me know**.

I look forward to hearing from you.

Thank you again for your help.

Yours sincerely,

Isabel Windeatt

Postgraduate Research Student

Division of Human Communication Sciences

University of Sheffield

A.9 Information Sheet - Aphasia

The University Of Sheffield.

Information Sheet – Participant with Aphasia

Researcher – Isabel – PhD student

Isabel Windeatt

☎ 0114 222 2418

💻 ilwindeatt1@sheffield.ac.uk

Supervisors

Dr Traci Walker

☎ 0114 222 2420

💻 traci.walker@sheffield.ac.uk

Dr Catherine Tattersall

💻 c.tattersall@sheffield.ac.uk

☎ 0114 222 2446

Address ✉

Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS

The University Of Sheffield.

The project

We are looking at how people with aphasia and their relatives/partners use **silence** in **conversation**

silence

conversation

We want to **improve the understanding** of talk and **aphasia**

We want to see if **silences in conversations** are being **misunderstood**

This research will:

Improve the understanding of how **aphasia affects communication**

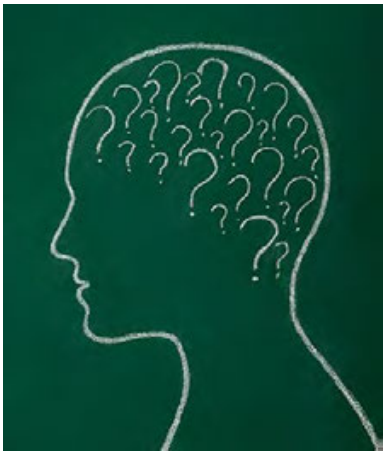
Help to inform future **therapy** and **healthcare guidance**

2

The University Of Sheffield.

Why have I been asked?

We are looking for **volunteers** with **aphasia**



Who else will take part?

We would also like you to **ask** an **adult relative or partner** to take part with you

3

The University Of Sheffield.

Do I have to take part?

No, we are looking for **volunteers**,

You can **change your mind** at **any time**

You can **stop** when **you want** to

You do **not** have to give a **reason why**

What will happen if I take part?

You will be asked to **sign** a **consent form** if you take part

4

The University Of Sheffield.

What will happen if I take part?

There will be **three sessions** lasting about **20-30 minutes**

3x

What will happen if I take part?

You will **chat** with your **relative or partner** in the sessions

5

The University Of Sheffield.

What will happen if I take part?

You can **allow** us to **video record** you

What will happen if I take part?

You can **allow** us to **audio record** you

It is **your choice**

6

The University Of Sheffield.

What will happen if I take part?

Isabel can come to your **home to do the recordings**

What will happen if I take part?
OR

You can come to **the university to do the recordings**

It is **your choice**

7

The University Of Sheffield.

Taking part – you may get tired

There are **no risks** in taking part but you may get **tired**

You can **rest** when **you need** to

Taking part

This is **not therapy**

You will **not directly benefit** from taking part

But the **results** will help us to **improve understanding of aphasia**

8

The University Of Sheffield.

Taking part

Your therapy will **not** be **affected**

Taking part

You can **ask** Isabel **questions** before you take part

9

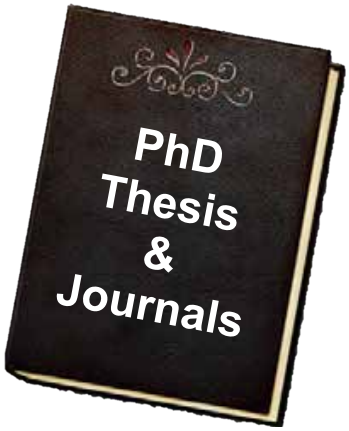
The University Of Sheffield.

How will my recordings be used?

Isabel will **analyse** the **recordings** and **write reports** about the **results**

The results

Isabel will write a **PhD thesis** about the **results** and may **publish** them in **academic journals**



10

The University Of Sheffield.

How will the results be shared?

Isabel will **talk to other researchers** about the **results**

How will the results be shared?

Your **name** will **not be used**

John Smith

Joan Smith

11

The University Of Sheffield.

How will the results be shared?

The video/audio will be **edited** so it will be **hard to identify you**

How will my data be stored?

Your **information** and **recordings** will be **stored securely** and **kept confidential**

Only the research team will see your information

12

The University Of Sheffield.

The results

You can **ask** to see the **results** of the study

Future data use

You can **allow** your data to be used in Isabel's **future research**

It's **your choice**

13

The University Of Sheffield.

Future data use

You can allow other **approved researchers** to **use your data** to do more research in future

It's **your choice**

Future data use

If you allow your data to be used in **future research**

Only the **edited** video/audio recordings will be used

14

The University Of Sheffield.

Future data use

Your data can be securely **destroyed 10 years after Isabel's PhD**

OR it can be **kept indefinitely** to help with **future research**

OR

It's **your choice**

Data Protection Act information

Processing your data is necessary for **research purposes**

and done for a task carried out in the public interest

15

The University Of Sheffield.

Data Protection Act information

The University of Sheffield will be the **legal controller** of your data

The University of Sheffield has **ethically reviewed and approved** this project

The University Of Sheffield.

Complaints

If something goes wrong or you're unhappy you can contact the **Head of Human Communication Sciences** to make a **complaint**

Professor Patricia Cowell

☎ 0114 222 2426

💻 p.e.cowell@sheffield.ac.uk

16

The University Of Sheffield.

If you want to take part

You can post your Expression of Interest form to Isabel

Expression of Interest Form for Research Participation

Researcher: Isabel Windeatt

Project title: Understanding the use of silence in conversations with people with aphasia

If you are **interesting** in **taking part** in this research project
please **complete** this form and return it in the **envelope** provided
OR
bring the form to your next **clinic session** to hand in

Person with Aphasia

Name	_____			
Address	_____			
	_____			
	_____			
Phone number	_____			
Email address	_____			
Preferred contact method (circle)		Telephone	Email	Letter
I am interested in taking part (circle)		Yes	No	
I am happy for Isabel to contact me to arrange a meeting (circle)		Yes	No	
Signature	_____			
Date	_____			

If you want to take part

Or you can take your form back to the clinic to hand in

Thank you!

17

A.10 Presentation for Aphasia Clinic

26/09/2021

Hello!

My name is Isabel

I am a **PhD student** at
the University of Sheffield

The University Of Sheffield.

1

My research

I am doing **research** on how

people with **aphasia**

and their **relatives/partners**

use **silence** in **conversation**

silence

conversation

2

My research

I want to improve the understanding of how

aphasia affects **communication**

3

Who I need help from

I'd like people with **aphasia**

and their **relatives or partners**

to **take part** in my study

4

Volunteers

I'd like **volunteers** to **take part** in my research

You **don't have** to **take part** if you don't want to

It's **your choice**

5

What you'd have to do

Have a **conversation**
with your **relative or partner**

For **20-30 minutes**

For **three sessions**

3x

6

26/09/2021

What you would have to do

Your conversation will be **recorded**
So that I can **analyse** it in my **research**


7

More information

I have **information sheets** to hand out

To **tell you more** about what my project involves

Please take one if you are interested

8

If you are interested

I will give you an **Expression of Interest form**

You can **go home** and **read** the information

To **decide** whether you want to take part

9

If you are interested

If you do want to take part

Complete the **expression of interest form**

And **post** it back to me

OR **hand it** back at your next session

10

Thank you

Thank you for listening to me

Do you have any **questions**?

11

A.11 Information Sheet - CP

Participant Information Sheet – Relative/Partner

You are being invited to take part in my PhD research project and before you decide whether or not to participate, it is important you understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Feel free to ask me if there is anything that is not clear or if you would like more information. Thank you for your time.

What is the project about?

Project Title: Understanding the use of silence in conversations with people with aphasia.
Researcher: Isabel Windeatt

My PhD research project investigates how people with aphasia and their relatives/partners use silence in everyday conversation and aims to determine whether silences are being misunderstood. I will look at how silence is used as a tool to do things in conversation, such as to show disagreement or to encourage others to talk. I will also look at when silence results from processing time, the time taken to understand what is being said to you and for you to form a response. This research will improve the understanding of how aphasia affects people's communication and will provide valuable insight into how people with aphasia and their relatives/partners communicate, which can be used to inform future therapy and healthcare guidance.

Why have I been asked?

You have been invited to take part because you are a relative/partner of a person with aphasia, are over 18, and have had no past or current speech and language difficulties.

Do I have to take part?

No, it's up to you whether or not to take part in this study – it is entirely voluntary. If you don't want to take part it will not negatively impact you or your relative/partner, or their care, in any way.
If you do decide to take part, you can keep this information sheet and will be asked to sign a consent form. We will go through the forms together and I will answer any questions you might have.

What will happen if I take part?

If you agree to take part, I'd be happy to meet with you so that we can have a chat and you can ask questions before any data collection starts. For the data collection, all you'd need to do is have three, 20-30 minute conversations between you and your relative/partner recorded. We'd like to video record your conversations, but if you want to take part and only be audio recorded, that is fine with us. Each recording session will last approximately 20-30 minutes, including recorder set-up, and will be spaced out over 6 to 10 weeks so that the times arranged can be suitable for you. The most natural place to record will be at your home, where you'd feel more at ease and don't have to travel. However if you prefer, we can arrange to do the recordings in the Department of Human Communication Sciences at the University of Sheffield.

What do I have to do?

I will set up the video recorder (or audio recorder if you don't want to be video recorded) and show you how to use it in case you need to pause or stop the recording at any point. I'll start the recorder and leave for 20-30 minutes so that you and your relative/partner can chat together as you would in a normal, everyday situation - for instance while having a meal, a cuppa, or when planning your day. You won't need to do anything else or change your lifestyle in any way if you agree to take part.

What are the possible disadvantages and risks of taking part?

There are no foreseeable disadvantages or risks in taking part in this project. It is possible that you or your relative/partner may start to feel tired during the recording. If this happens, you can stop the recorder and continue when you both feel able, or you can rearrange for another time.

What are the possible benefits of taking part?
While there are no direct benefits for taking part in the project, it's hoped that this research will provide valuable information on how people with aphasia and their relatives/partners communicate, particularly in regard to silence. This information will improve the understanding of how people with aphasia talk and will be used to suggest strategies that can help people adapt to the loss of language caused by aphasia.

How will the recorded media be used?
The video/audio recordings will be watched/listened to by the me and my supervisors. I will edit them using computer software to pseudonymise them (reduce your recognisability, like in the picture to the right) and any identifying places or names will be removed.

I will transcribe the recordings (type up a script of what has been said during your conversation) which will allow me to analyse the use of silence. Your real names will not be used and any names, places or other identifying details will be changed. The transcripts and the recordings of your conversations will be used for analysis and for illustration in my PhD thesis, academic publications, and conference presentations. They will not be used for anything else without your written permission, and no one outside the project will be allowed access to the original recordings.

How will my data be stored?
It will be stored on my secure University of Sheffield computer drive which only my supervisors and I can access and paper documents containing personal information will be held in a secure filing cabinet. The paper documents will be scanned on to my computer drive and secured with a password. The original paper documents will be securely destroyed on completion of the project.

Will my taking part in this project be kept confidential?
All the information that we collect about you during the course of the research will be kept strictly confidential and will only be accessed by members of the research team. You will not be identifiable in any reports or publications unless you request to be so. If you agree to us sharing the information with other researchers, your personal details will not be included unless you request this.

What will I do with the results of this research project?
The results of this study will be published in academic journals and my PhD thesis, and will be presented to other researchers. You won't be recognisable in published or presented materials unless you ask to be so. I'd be happy to provide you with a copy or a summary of the final research if you'd like it.

What will happen to the data collected?
What happens to the data collected is up to you. Due to the nature of this research and the data you'll be providing, it is very likely that other researchers may find the edited recordings to be very useful in answering future questions about aphasia and how it affects communication. I will ask for your explicit consent for your edited recordings to be shared with the researcher staff within my department and other researchers who have undergone ethical approval. Your personal details will not be shared and you don't have to allow your edited recordings to be shared if you don't want to.

With your permission, the edited video data will be kept indefinitely in a secure data repository for the purpose of future research. Otherwise it will be destroyed ten years after the completion of my PhD. If you decide to withdraw from the research project, I will securely delete all of your data.
If you do not agree to this, I will only use your recordings for this project and keep them for ten years after the conclusion of my PhD. Your non-edited recordings will not be shared and it's up to you whether they're kept indefinitely or destroyed after 10 years. No matter what you decide, your data will be stored securely and anonymously.

What is the legal basis for processing my personal data?
In accordance with data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing of your personal data is necessary for the performance of a task carried out in the public interest' (GDPR, Article 6(1)(e)). If you would like any further information, please see the University's Privacy Notice: https://www.sheffield.ac.uk/govern/data-protection/privacy/general. If you would like me to provide you with a copy, please just ask.

Who is the Data Controller?
This research is organised by the University of Sheffield who will act as the Data Controller for this study. This means the University is responsible for looking after your information and ensuring it's used properly.

Who has ethically reviewed the project?
This project has been ethically reviewed and approved via the University of Sheffield's Ethics Review Procedure, administered by the department of Human Communication Sciences.

What if something goes wrong and I wish to complain about the research?
If you have any concerns during or after your participation in the research and you wish to discuss this, please contact either me or my project supervisor (contact details provided below). We will do all we can to resolve the issue for you.
If you want to speak to someone who is not involved in the project, you can contact the Head of the Department of Human Communication Sciences:

Professor Patricia Cowell
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: p.e.cowell@sheffield.ac.uk
Phone: 0114 222 2426

If you feel that the University has not dealt correctly with your personal data you can complain to the Information Commissioner's Office through this link (https://ico.org.uk/make-a-complaint/)

Who should I contact if I would like more information or want to sign up to take part?

Researcher - Isabel Windeatt
PhD Student
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: ilwindeatt1@sheffield.ac.uk
Phone: 0114 222 2418

Project Supervisor - Dr Traci Walker
Senior Lecturer
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS
Email: traci.walker@sheffield.ac.uk
Phone: 0114 222 2420

How do I sign up to take part?
If you decide that you want to take part after reading this information sheet, please return the Expression of Interest form in the addressed envelope provided, or return the form to your relative's/partner's aphasia clinic. I will then get in touch with you to arrange a meeting.

Thank you for taking the time to read this and for your interest in taking part in the project.

A.12 Expression of Interest Form

Expression of Interest Form for Research Participation

Researcher: Isabel Windeatt

Project title: Understanding the use of silence in conversations with people with aphasia.

If you are **interested** in **taking part** in this research project
please **complete** this form and return it in the **envelope** provided
OR
bring the form to your next **clinic session** to hand in.

Person with Aphasia

Name	_ _		
Address	_ _		
	_ _		
	_ _		
Phone number	_ _		
Email address	_ _		
Preferred contact method (circle)	Telephone	Email	Letter
I am interested in taking part (circle)	Yes	No	
I am happy for Isabel to contact me to arrange a meeting (circle)	Yes	No	
Signature	_ _		
Date	_ _		

1

The University Of Sheffield.

Relative/Partner

Name _

Address _

_ _

_ _

Phone number _

Email address _

Relation to person with aphasia _

Preferred contact method (circle) Telephone Email Letter

I am over 18 Yes No

Have you ever had had speech/language difficulties or a cognitive defect? Yes No

I am interested in taking part (circle) Yes No

I am happy for Isabel to contact me to arrange a meeting (circle) Yes No

Signature _

Date _

Thank you both for your interest in taking part in my research.

A.13 Consent Form - Aphasia

Consent Form – Participant with Aphasia

Understanding the use of silence in conversations with people with aphasia.

Researcher – Isabel Windeatt

☎ Phone: 0114 222 2418

💻 Email: ilwindeatt1@sheffield.ac.uk

🖃 Address:
Department of Human Communication Sciences
University of Sheffield
362 Mushroom Lane
Sheffield S10 2TS

Information sheet	Tick ✓
I understand the **information sheet**	☐
I understand I am **volunteering** to take part	☐
I understand doing this will **not** affect any **support** I receive	☐
I understand I can **stop** at any time	☐
I understand the results may be used for **another study**	☐

Recordings and Data	**Yes ✓**	**No ×**
I agree to be **video recorded**	☐	☐
I agree to be **audio recorded**	☐	☐
I agree my recordings can be used in **future research**	☐	☐
I want the **original recordings** to be **kept indefinitely**	☐	☐
OR		
I want the **original recordings** to be deleted after **10 years**	☐	☐
I want the **edited recordings** to be kept indefinitely	☐	☐
OR		
I want the edited recordings to be **deleted** after **10 years**	☐	☐
I agree **researchers in Human Communication Sciences** can use the **edited recordings**	☐	☐
I agree that **researchers at other Universities** can use the **edited recordings**	☐	☐

Participant Number _____ 2

Confidentiality	Tick ✓
I **understand** the **study**	☐
I understand that **words** from my recordings will be used in **research publications**	☐
I understand study will **not** use my **name**	☐
I understand other researchers will **not** know my **name**	☐
I understand that the research team will **watch and listen** to the **recordings**	☐
I understand the research team will **edit** the recordings to stop me being **recognised**	☐
I understand my information will be **stored securely**	☐

Telling people about results	Tick ✓
I understand the researcher will **write** about the results	☐
I understand the researcher will **talk** to **other researchers** about the results	☐
I understand my **name** will **not** be used in presentations or writings	☐

Participant Number _____ 3

Consent	**Yes ✓**	**No ×**
I have had a chance to ask **questions**	☐	☐
I **agree** to take part in the **research**	☐	☐
I agree any **materials created** during the project belong to the **University of Sheffield**	☐	☐

Name of participant	Signature	Date
_____	_____	_____
Name of researcher	Signature	Date
_____	_____	_____

Thank you for agreeing to take part in this research.

Participant Number _____ 4

A.14 Consent Form - CP

Consent Form – Relative/Partner

Understanding the use of silence in conversations with people with aphasia.

Taking Part in the Project	**Yes**	**No**
I have read and understood the study information sheet and the research has been fully explained to me.	☐	☐
I have been given the opportunity to ask questions.	☐	☐
I agree to take part in this research.	☐	☐
I agree to be video recorded as part of this research.	☐	☐
I agree to be audio recorded as part of this research.	☐	☐
I understand that participation is voluntary and I can withdraw from the study at any time without giving a reason. There are no negative consequences for withdrawing.	☐	☐

How my information will be used during and after the project	**Yes**	**No**
I understand my personal details such as name, phone number, address, etc. will not be revealed to people outside the project.	☐	☐
I understand that words from my recordings (transcripts) will be used in research publications, reports, etc. and that I will not be named unless I specifically request this.	☐	☐
I agree that authorised research staff in Human Communication Sciences can use and access my pseudonymised recordings for research purposes.	☐	☐
I agree that other authorised researchers can use and access my pseudonymised recordings research purposes.	☐	☐
I agree that my unedited video/audio recordings can be kept indefinitely.	☐	☐
I agree that my pseudonymised video/audio recordings can be kept indefinitely.	☐	☐

Participant Number _____

If I have said no to the above	**Yes**	**No**
I understand my unedited video/audio recordings will be kept for 10 years.	☐	☐
I understand my pseudonymised video/audio recordings will be kept for 10 years.	☐	☐
I give permission for my pseudonymised video/audio recordings to be deposited in a data repository so it can be used for future research and learning.	☐	☐

So that the information you provide can be used legally by the researchers	**Yes**	**No**
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed]	Signature	Date
---	---	---
Name of Researcher [printed]	Signature	Date
---	---	---

Thank you for agreeing to take part in this research.

Participant Number _____

A.15 Additional Consent Form

Consent Form – Participant with Aphasia

Understanding the use of silence in conversations with people with aphasia.

Researcher – Isabel Windeatt

Phone: [redacted]

Email: ilwindeatt1@sheffield.ac.uk

Consent	Yes	No ×
I understand the **letter** requesting access to my **Aphasia Clinic files at the University of Sheffield**	☐	☐
I have had a chance to ask **questions**	☐	☐
I **agree** to Isabel and her supervisor accessing **my Aphasia Clinic files**.	☐	☐
I **agree** Isabel can include the information **listed in the letter** in her **publications**	☐	☐
I understand my information will be **stored securely**	☐	☐
I understand my **name** will **not** be used in presentations or writings	☐	☐
I understand that I can **change my mind** at **any time**.	☐	☐

Name of participant	Signature	Date
_____	_____	_____
Name of researcher	Signature	Date
_____	_____	_____

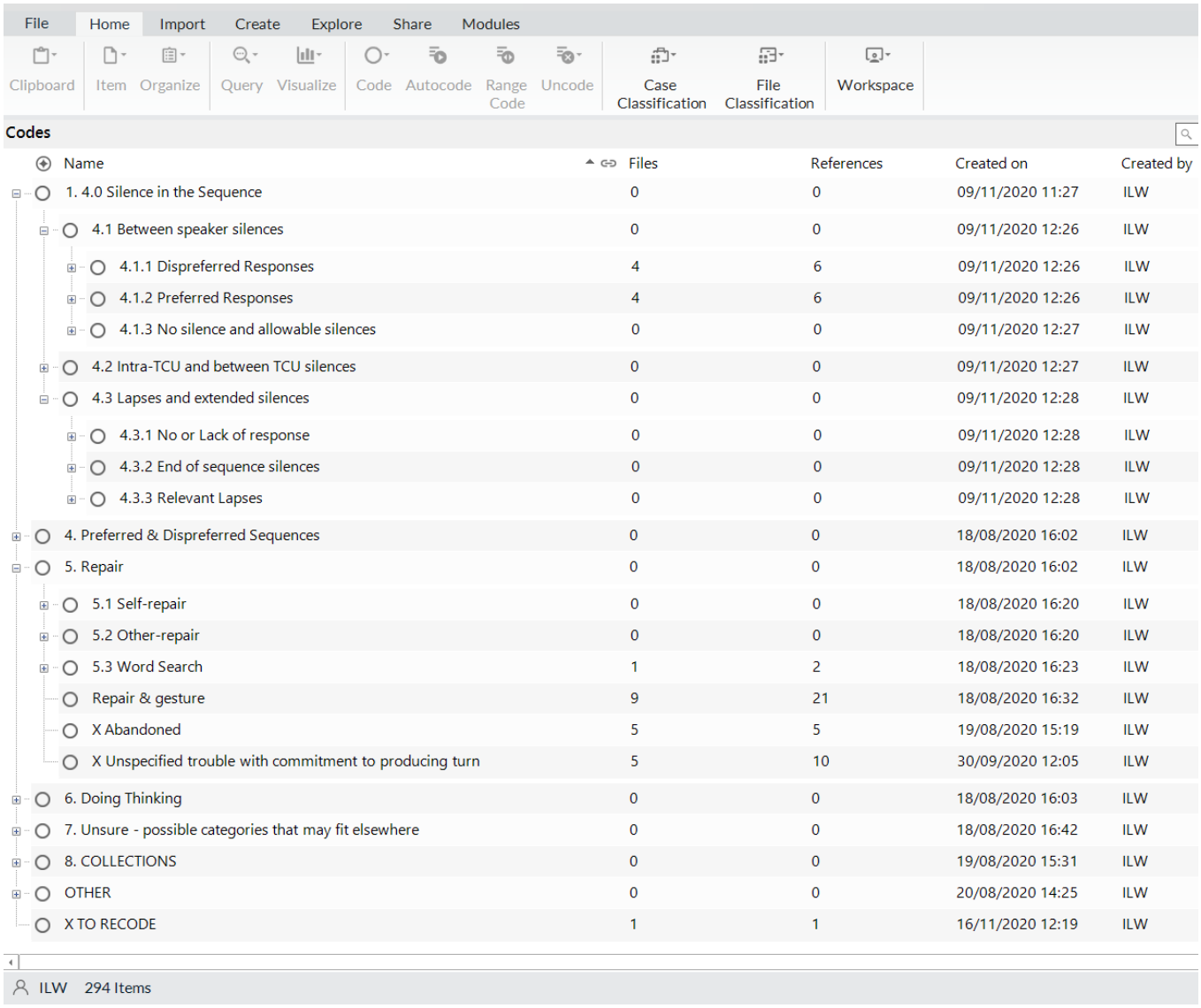
B Transcription and Collection Details

B.1 Transcription Conventions

Symbol	Meaning
[	Start of overlapping talk
]	End of overlapping talk
=	Latched speech
wo-	Talk that has been cut off mid-word
::	Sustained or stretched sound, e.g. o::::h
.h	In-breath, number of 'h's representing tenths of a second
h.	Out-breath, number of 'h's representing tenths of a second
↑	Marked increase in pitch
↓	Marked decrease in pitch
<word>	Speech that is markedly slower than the surrounding speech
>word<	Speech that is markedly faster than the surrounding speech
(1.2)	Silence in seconds and milliseconds to the nearest tenths of a second
word	Emphasised speech
WORD	Louder speech
°word°	Quieter speech
(word)	Transcription that the researcher is unsure about
(word/word)	Potential alternative transcriptions
(xxx)	Unclear transcription which cannot be guessed at
((gesture))	Description of gesture or other physical actions occurring
(1.0)/((gesture))	Silence, with description of a gesture, facial expression or gaze direction occurring during the silence
wo(hh)rd	Laughter during speech
£word£	Word said while smiling

Table 1: Transcription Conventions: Adapted from Jefferson (2004)

B.2 Nvivo Codes



File Home Import Create Explore Share Modules

Clipboard Item Organize Query Visualize Code Autocode Range Code Uncode Case Classification File Classification Workspace

Codes

Name	Files	References	Created on	Created by
1. 4.0 Silence in the Sequence	0	0	09/11/2020 11:27	ILW
4.1 Between speaker silences	0	0	09/11/2020 12:26	ILW
4.1.1 Dispreferred Responses	4	6	09/11/2020 12:26	ILW
4.1.2 Preferred Responses	4	6	09/11/2020 12:26	ILW
4.1.3 No silence and allowable silences	0	0	09/11/2020 12:27	ILW
4.2 Intra-TCU and between TCU silences	0	0	09/11/2020 12:27	ILW
4.3 Lapses and extended silences	0	0	09/11/2020 12:28	ILW
4.3.1 No or Lack of response	0	0	09/11/2020 12:28	ILW
4.3.2 End of sequence silences	0	0	09/11/2020 12:28	ILW
4.3.3 Relevant Lapses	0	0	09/11/2020 12:28	ILW
4. Preferred & Dispreferred Sequences	0	0	18/08/2020 16:02	ILW
5. Repair	0	0	18/08/2020 16:02	ILW
5.1 Self-repair	0	0	18/08/2020 16:20	ILW
5.2 Other-repair	0	0	18/08/2020 16:20	ILW
5.3 Word Search	1	2	18/08/2020 16:23	ILW
Repair & gesture	9	21	18/08/2020 16:32	ILW
X Abandoned	5	5	19/08/2020 15:19	ILW
X Unspecified trouble with commitment to producing turn	5	10	30/09/2020 12:05	ILW
6. Doing Thinking	0	0	18/08/2020 16:03	ILW
7. Unsure - possible categories that may fit elsewhere	0	0	18/08/2020 16:42	ILW
8. COLLECTIONS	0	0	19/08/2020 15:31	ILW
OTHER	0	0	20/08/2020 14:25	ILW
X TO RECODE	1	1	16/11/2020 12:19	ILW

ILW 294 Items

B.3 Collection Details

Section	**Collection Name**	**Number of collected extracts**	**Number of extracts used in thesis**
4.1.1	Dispreferred Responses	51	5
4.1.2	Preferred Responses	70	4
4.2.1	Turn-Holding	43	3
4.2.1	Speaker Transition During a Mid-Turn Silence	15	3
4.3.1	No Response	14	4
4.3.2	Ambiguity and Progressivity	13	3
4.3.3	Affiliation, Alignment and Progressivity	15	3
5.1.1	Self-Initiated, self-Repair	61	3
5.1.2	Other-Initiated, self-Repair	32	2
5.2.1	Other-Initiated, candidate Repair	21	3
5.2.2	Other-Initiated, Candidate Repair Rejection	19	2
5.3.1	Self-Repaired Word Searches	30	3
5.3.2	Candidate Solutions to Word Searches	14	3
5.3.3	Participatory Word Searches	15	3
6.1.1	Embodied Thinking	51	3
6.1.2	Vocal Thinking	26	2
6.2.1	Silence and Delicates	15	3
6.3.1	Silence and Claims of Understanding	25	2
6.3.2	Silence and Displays of Understanding	45	3
	Total	**575**	**57**

Table 2: Collection Numbers