# The Subjective Perspective of Language Impairment in Aphasia: Insights from a Metaphor-led Discourse Analysis of Autobiographies by People with Aphasia

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## Abstract

**Background and Rationale**. Aphasia is a complex and heterogenous disorder. Important theoretical questions about language processing remain open, as do clinical questions about the most useful ways of categorising and describing language impairment. Aphasiology draws on multiple disciplines and methodologies in addressing these problems. One source of information is in the subjective experience of people with aphasia. For over 200 years people with aphasia have written about their experience of language impairment, and have shared these contributions with the community of researchers and clinicians working in aphasiology. At times these accounts have strongly informed the scientific literature. However, currently, despite the fact that modern autobiographical accounts of aphasia are increasing in quantity and diversity, there is little integration of these accounts with theoretical work.

Metaphor structures our understanding of abstract topics in terms of familiar, concrete topics. Metaphor-led discourse analysis provides a rigorous methodology for the exploration of discourse data, has been widely used in healthcare, and has been applied in neurological and psychological conditions to describe diagnostically relevant symptoms. It has not previously been applied to the exploration of aphasia at the level of impairment. The research described here uses metaphor-led discourse analysis to explore subjective descriptions of language processing, in particular word finding and production difficulties, in order to demonstrate that insights from autobiographical accounts can contribute to open interdisciplinary questions in aphasiology.

**Aims.** To explore the subjective experience of word finding and production impairment, as described in autobiographical accounts by people with aphasia, through metaphor-led

discourse analysis. To interpret the findings of this analysis with reference to the theoretical literature on language processing.

**Method**. First, a literature review was carried out to explore the number and range of autobiographical accounts of aphasia which are available. These were evaluated by era since the beginning of scientific aphasiology, with attention to the changing demographic and medical characteristics of the authors, exploration of representative content of accounts in each era, and evaluation of how they were received by the scientific community and integrated with the theoretical literature (or not).

A convenience sample was selected of twelve autobiographical accounts which were produced in the last fifty years, and a dataset was created of all metaphorical expressions used to describe language processing in these accounts. Metaphorical expressions were then coded at two levels of abstraction according to the semantic domain of the metaphorical 'vehicle terms' (the words which carry the metaphorical meaning). Following this the metaphorical expressions were coded by topic (namely, language modality). A subset of the dataset was created to address word finding and production, a key symptom of all subtypes of aphasia. Chapter 4 describes the systematic metaphors which were used for word finding and production difficulties. Chapter 5 explores inner speech in four accounts in more detail, as this emerged as a salient symptom from the exploration of word finding and production difficulties. Finally, Chapter 6 describes the use of metaphor for metacognition in two accounts whose authors described metacognition as playing a role in their recovery of word finding ability.

**Results and Discussion.**

- Chapter 2 describes the results of a literature review of autobiographical accounts of aphasia. The main findings are that the number and the diversity of such accounts has increased sharply over the last century and that this trend is likely to continue, and that

these accounts contain insights which can make a valuable contribution to our theoretical understanding of language impairment, but that there is a lack of integration of modern autobiographical accounts with the scientific literature.

- Chapter 4 describes the findings of a metaphor-led discourse analysis of twelve autobiographical accounts of aphasia. The main metaphor used was the conventionally used one which represents words as objects and the mind as a container, but a wide range of other metaphors were also used. The metaphors used for word finding and production difficulties are consistent with fine-grained psycholinguistic theory. The subjective descriptions mapped onto modular levels of processing, with some authors describing multiple subjectively distinct impairments. Impaired self-monitoring was described primarily in terms also used for receptive language. Cognitive processes were also described as playing a role in language production. It was also found that the impairment of inner speech was a highly salient symptom for two of the authors.
- Chapter 5 describes the results of an in-depth analysis of descriptions of inner speech in four accounts which were selected because the authors reported inner speech impairment. This analysis found that two distinct concepts were described, using different metaphors, and as differentiated processes: phonological and dialogic inner speech. Impaired dialogic inner speech was described by two of the authors in terms of ‘voices’ and as a spiritual experience. Impaired phonological IS was described by two other authors primarily in terms of ‘objects’ and ‘containers’. A double dissociation of these different concepts of inner speech was seen across two accounts. These concepts are not consistently distinguished in the inner speech literature, this analysis shows the importance of this distinction for aphasia.

- Chapter 6 found that different approaches to the use of metaphor for metacognition were described as successfully contributing to recovery: reasoning with the use of one conventional metaphor and comparing multiple metaphors. This suggests that the process of engaging in metacognition using metaphor can be beneficial, regardless of the specific metaphors or the approach adopted.

**Conclusions and implications.**

The subjective experience of aphasia can be integrated with theories of language processing and contains information, not readily obtained by other methods, through the use of rigorous methods such as metaphor-led discourse analysis. The authors' descriptions of their experiences were consistent with a modular account of word production that includes self-monitoring through receptive language and interacts with cognitive processes. Thus, the use of this method can guide model selection for clinical use; if a symptom is subjectively salient then important information may be missed if assessment and intervention is planned with reference to a model which does not capture this symptom. Additionally, the in-depth exploration of inner speech showed that this method can help to clarify theoretical concepts, through differences in the metaphors used and through description of dissociations across accounts. Finally, that metaphor is used spontaneously for metacognition by some people with aphasia suggests that metaphor may have application not only in assessment, but in supporting recovery and in intervention.

# Chapter 1. Introduction

Aphasia, that is, the neurological impairment of language, affects many survivors of stroke or brain injury. Language processing is one of the brain's most complex functions, involving many different linguistic and cognitive processes, and multiple areas of the brain. As a result of this complexity, a wide range of different symptoms can occur in aphasia, depending on which mental processes are affected, and to what degree. Various methodologies from cognitive science are used to attempt to understand how language is processed in the brain, and how it is disrupted when the brain is damaged, including detailed case studies, experimental group studies, computational modelling, and imaging studies on people with and without aphasia.

This interdisciplinarity is a benefit, as the data resulting from each experimental approach contributes usefully constraining data, or converging evidence, to the findings of other approaches. As all methodologies for the investigation of language necessarily involve assumptions or artificial experimental manipulations, this ongoing synthesis of methodologies is important. However, there is a potential source of useful data which is not currently integrated with this interdisciplinary research, in the descriptions of the subjective experience of language impairment contributed by people with aphasia. Historically, and informally, the subjective perspective has played a role in the development of aphasiology, but currently there is a lack of attention to, and of methods for elicitation and analysis of, the first-hand experience of aphasia in research and clinical practice.

The use of qualitative methods to explore the subjective experience and perspective of people with aphasia is increasing (Simmons-Mackie & Lynch, 2013). However, there is a tendency in aphasiology, and in healthcare research more broadly, to limit the use of

qualitative methods and subjective data to research questions about topics such as the impact of an impairment on well-being, relationships, interaction with medical professionals and medical decision-making, and other social and emotional factors. For investigating the nature of an impairment more quantitative and objective measures are usually used, as discussed above. Qualitative methods to explore the subjective experience of symptoms can however be applied to research at the impairment level. Attention to subjective symptoms is an intrinsic part of medicine, including neurology, such as in reports of sensory disturbance or pain. Below, the reasons for seeking to integrate the subjective experience of aphasia with more objective approaches are discussed. An underused source of data which is ideally suited for an initial exploration of how to do so is identified, and a methodological approach which allows for the rigorous analysis of this data is described.

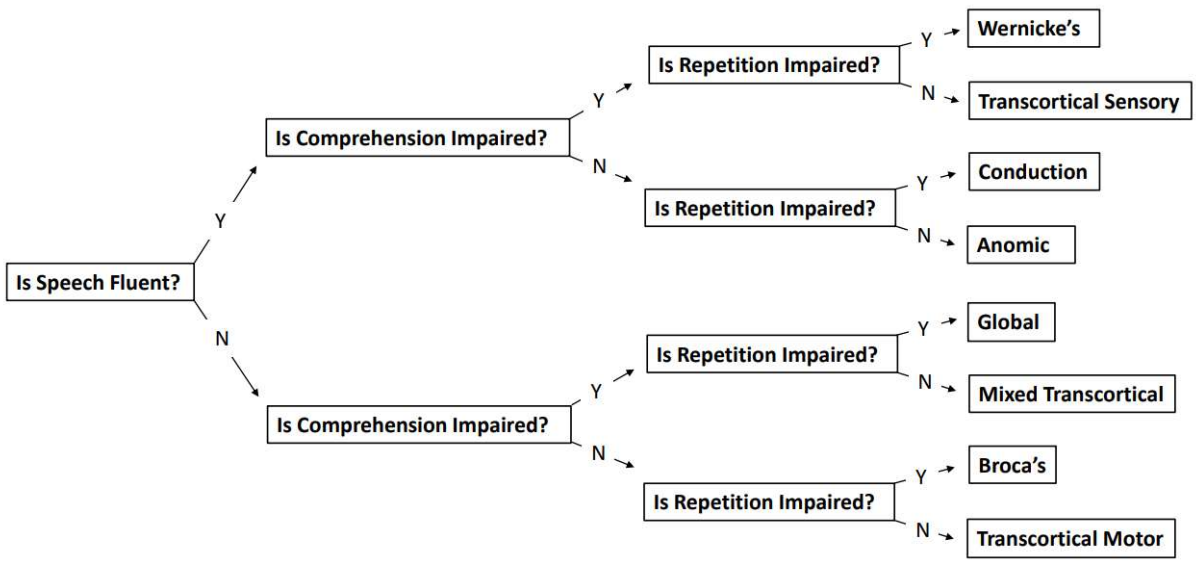
**Theories of Word Finding and Production Difficulties**

The choice of how we assess and describe symptoms of aphasia is important in research and clinical practice. Our theoretical understanding of aphasia informs the development of new interventions, and the identification of suitable candidates for such interventions. Given the heterogeneity of aphasia, it is important that we are able to identify and describe the most relevant aspects of a person's aphasia in order to build an evidence base about the efficacy of particular interventions, and then to select the appropriate interventions for individual clients. In clinical practice and in research there are standardised assessments which are used to describe an individual's language impairment. Many of these are battery assessments which provide a syndrome label (the Western Aphasia Battery is widely used in research, Kertesz, 2007, which follows the syndromic classification system of the Boston Diagnostic Aphasia Examination, Goodglass & Kaplan, 1972). Syndromic

classifications have been used, and have been criticised as over-simplified and unreliable, since the late nineteenth century. Figure 1 shows the most widely used syndrome classification and labels. The labels they provide, such as 'Broca's Aphasia' or 'Conduction Aphasia' are intended to reflect useful clusters of people with similar language impairments, but it has been repeatedly shown that there are important inconsistencies within syndrome labels and that a significant minority of people with aphasia cannot be reliably classified in this way (Kasselimis et al., 2017). Various different underlying profiles of impaired and preserved processes may produce similar enough behaviour to be grouped together under one of these labels, and yet there may be important differences which should be considered in case management.

**Figure 1**

*Syndromic Classification of Aphasia (based on Goodglass & Kaplan, 1972).*

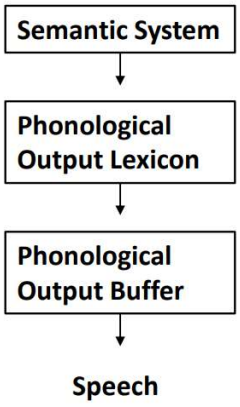



The alternative approach to categorising types of aphasia is to describe the impairment precisely, with reference to a model of language processing on the basis of which a description can be given in terms of impaired and preserved processing of modules.

Thus, a person's difficulties with word production might be described as due to a 'phonological output buffer' impairment. There is a clinical tool available for this in the Psycholinguistic Assessments of Language Processing in Aphasia (PALPA, Kay et al., 1996). The details captured by the psycholinguistic model of PALPA (Kay et al., 1996), are more nuanced than those described with syndrome classifications, but are nevertheless limited by the theoretical model used in their analysis. Any model or classification system necessarily incorporates assumptions and simplifications about issues which are still the topic of active research and debate. Some of the differences and the symptoms which are not captured by the tools available may be important aspects of language processing, with theoretical and clinical relevance. Additionally, in clinical practice it is often not practical to assess language at a fine-grained level using tasks such as those available in PALPA due to the demands on the time and energy of the patient, the time, resources, and expertise of the clinician.

**Figure 2**

*A psycholinguistic modular functional architecture of word production (based on Kay et al., 1996).*




Increased standardisation in assessments has many benefits for both research and clinical practice. However, it is not without drawbacks. Symptoms or aspects of aphasia which are not readily captured by available assessment tools, described within widely used

classification systems, or explained by particular language processing models, will inevitably receive less attention, clinically and in research. Sensitivity to symptoms which are not readily described within these systems will be reduced, especially in clinical settings with large caseloads and limited time for assessment and analysis. Progress in understanding aphasia and language processing is partly driven by curiosity about phenomena which contradict our intuitions or theoretical commitments. In neuropsychology the single case report contributed by a clinician who becomes aware of such a contradiction is an important source of new insights. Our field is impoverished if an over-reliance on a narrow range of standardised assessments and theoretical models available to time-poor clinicians stems the contribution of the anomalies or contradictions which may drive the development of new scientific paradigms.

The limitations of existing approaches to assessment and description of aphasia and the potential contribution of the subjective perspective are here explored with reference to current research in word finding and production. Difficulty with word finding and production is a universal feature of aphasia. It is the key symptom of otherwise dissimilar syndrome types, and persists to some degree throughout recovery. It is often the main barrier to functional expressive communication, as the ability to select and produce a word is fundamental to linguistic communication. However, it is not a unitary symptom: there are numerous ways in which the complex series of processes involved in successful word-finding and production can be disrupted.

To appropriately support and treat people with aphasia we must be able to describe and categorise word-production difficulties with reference to a theory of the underlying processes. However, there are substantial unsettled theoretical debates and, perhaps

because of this, recent theoretical developments have not been incorporated into the diagnostic frameworks used in clinical practice and in much clinical research. As Wilshire (2008) argued over a decade ago, the PALPA model (Kay et al., 1996) does not provide a way to describe aspects of language processing emphasised by more recent theoretical models. With regard to word finding and production some key issues are: interactivity between levels of processing as described by connectionist accounts (exemplified by Dell's Interactive Activation family of models, e.g. Foygel & Dell, 2000); and the involvement of receptive language, cognitive and syntactic factors in word-production, as captured by models which synthesise interdisciplinary data such as Lichtheim 2 (Ueno, Saito, Rogers & Lambon Ralph, 2011) and WEAVER++/ARC (Roelofs, 2014).

In summary, there are numerous linguistic, cognitive, and strategic factors which can lead to impaired word-finding and production. Cognitive and linguistic models attempt to provide a framework within which word-finding difficulties can be explained. It should be expected that understanding the nature of an individual's word-finding difficulties would contribute to good clinical decision making and support evidence-based practice. Yet the administration of extensive tests to determine levels of impairment is not always practical or ethical, and different explanations of an emergent behaviour can be given not only by competing models but within one model. Some of these aspects of word-production may be highly relevant to providing clinically useful descriptions of word-production difficulty, and it is a loss to clinical practice and research to wait until theoretical debates are settled before considering their utility. Thus, there is a need to determine which aspects of these competing models best represent clinically relevant aspects of word-production difficulties in aphasia and may not currently be adequately captured. Understanding which aspects of

word finding and production difficulties are subjectively salient is useful in considering the clinical utility of these models.

**The Subjective Perspective on Word Finding and Production Difficulties**

People with aphasia experience their symptoms directly, and usually without theoretical preconceptions. It is common in clinical or research settings for a person with aphasia to comment on their experience of a particular assessment task or on their experience of their language impairment in daily life. Clinicians may ask their clients about their experience, or it may be spontaneously volunteered. To illustrate this with some examples, a person with aphasia may make comments about their word finding and production difficulties such as: “I can hear the word in my head, but I can’t say it,” “My mind is blank, I can’t think of any more,” “I can hear it’s coming out wrong,” or “I can’t hear what I’m saying to know if it’s right.” These types of comments may convey useful information about the locus of impairment, the relative salience of different aspects of multiple difficulties, or the use of helpful or unhelpful strategies. Attention to the subjective experience of symptoms of aphasia can make a unique and important contribution to the field, clarify current topics of debate, improve communication between clinicians, researchers, and people with aphasia, and identify which of multiple diverse symptoms are priorities for clinical management. However, the subjective experience of tasks used in assessment, or of symptoms of aphasia in daily life, is not routinely collected, or discussed as a source of information.

Introspection has already contributed to our understanding of word production models. The occurrence, in unimpaired language processing, of ‘tip-of-the-tongue’ states, prompted the theoretical insight that semantic representations may be activated independently from their corresponding phonological representations. While tip-of-the-

tongue states have been experimentally investigated (in people with aphasia and without), their subjective experience provided the impetus for this investigation. There are other types of disruption of word finding and production which are not widely experienced by people who do not have aphasia or other language difficulties, such as impairment of self-monitoring, working memory, and motor control. These difficulties may be just as available for introspective observation and report as the more widely familiar tip-of-the-tongue state. Additionally, if a conscious strategy is employed, the person who is using it may be able to report the strategy. The subjective experience of such difficulties thus may contain valuable insights that can inspire and ground theoretical and empirical work.

**Autobiographical Accounts as a Source of Data**

Numerous people with aphasia have written autobiographical accounts of their experience of aphasia. These accounts offer a rich source of data for the understanding of the subjective experience of symptoms, as well as of mechanisms and strategies for recovery. Perusal of autobiographical accounts suggests that there are valuable insights available which may contribute new insights or clarify theoretical questions, for instance Schultz (2010) describes the development of an internal compensatory strategy which leads to successful recovery of word finding ability (as described in Chapter 6). While these accounts have received few citations in the literature, some have been cited in support of particular hypotheses about the details of language processing (e.g., Morin 2009; Skipper, 2022), reflecting a recognition that such accounts can contribute valuable theoretical information.

Autobiographies are a unique source of longitudinal, detailed case reports on the individual who produced them, which may span years, or even decades, of recovery, across multiple stages and settings. These autobiographies are not static snapshots of symptoms at

one moment in time, but a retrospective account of a language impairment which recovers, or in some cases worsens. This opens up the opportunity of exploring how these changes themselves are described, and aspects of the experience which play a role in a story of recovery or adaptation. Autobiographical accounts have a validity which few other methods can claim, in that they contain multiple descriptions of daily communicative situations and language use, in addition to clinical assessments and interventions, and key moments such as evaluating progress at particular milestones or realising the presence of an impairment for the first time.

A further advantage is that these accounts have been produced outside of clinical or research settings. The scope of patient-led research is often limited, or at least shaped, by the context: the settings within which people are recruited, the relationship with the researchers, and the process of question-setting. A research setting is likely to be reminiscent of clinical settings and this may predispose someone to using a particular kind of language or to using particular ways to describe their experience for pragmatic or social reasons. The nature of aphasia intensifies this challenge as both the communication impairment, and any supports put in place to compensate for it, may make it harder to communicate novel thoughts and nuance. The fact that the task of writing an autobiography is a self-determined and self-managed one means that the language chosen is less likely to be influenced by the clinical or research environment of an interview. Additionally, the lack of external time constraints in writing an autobiography means that the author can prioritize communicating precisely what they wish to without the need to make pragmatic compromises due to their language impairment, any unusual word choice can be assumed to be deliberate rather than paraphasic or pragmatic. That this writing has been produced outside of a research context also brings some disadvantages. Information about the process

of production, in particular the amount of support with writing or editing, is not available. This means that we cannot know exactly how each text was produced, in particular, what level of writing and editorial support was involved. However, the advantages discussed above, and the availability of a range of texts which have been produced and published in different ways (self-published as well as traditionally published), along with the frequent inclusion of contemporaneous journal entries in these accounts, mediate this disadvantage and balance it with many advantages.

An additional consideration is that a sample of such accounts is far from representative. Many people do not have the motivation and resources to write and publish a book, even without the additional barriers introduced by aphasia and its common comorbidities. There are few tasks more linguistically demanding than writing a book. Not only word-finding and sentence construction skills are required, but the ability to structure a long and complex narrative, which also requires complex cognitive skills, the need to manage fatigue, and sustained motivation. Thus, the people who successfully finish such a project are likely to be atypical in these regards, and to have also made a good recovery in terms of their language and cognition. However, there are accounts which have been written by people who still report, or show in their writing, signs of significant language impairment (e.g., West, 2008; Vance, 2022), or who have had assistance with the macrolinguistic and cognitively demanding aspects involved (e.g., Luria, 1972). Additionally, the atypicality of the sample is not necessarily a disadvantage. The success, either of language recovery, or of adaptation and use of compensatory strategies, evidenced in the production of an autobiography, provides information on cases where there have been good outcomes. The information they contain about how these good outcomes were reached may be one of their most valuable aspects.

**Structure of the Thesis**

Chapter 2 reviews the contribution which autobiographical accounts of aphasia have made to aphasiology. It describes an ever-increasing quantity and diversity of such accounts, alongside a widening distance between these accounts and the scientific literature. This is partially the result of the methodological challenges in the analysis of this source of data. These autobiographies vary widely in content, format, and length. Some authors have immersed themselves in the scientific literature, or have a relevant background, and so may use technical terms to report their experience. Others may describe similar symptoms using ordinary language, or instead by using highly poetic and allusive language. The way in which a single author describes their symptoms may also change throughout a long form book, to reflect changes in their symptoms themselves or in their understanding of these symptoms. Therefore, a methodology is required which allows for the analysis of a large amount of discourse data produced by different people, which can be used to investigate both the similarities and differences in these descriptions, and which can capture change. Metaphor-led discourse analysis provides just such a methodology, as described in Chapter 3.

Chapter 4 presents the findings of an analysis of the metaphors used to describe word finding and production in twelve autobiographical accounts written by people with aphasia. It demonstrates that this method does provide a useful way to explore similarities and differences across a range of accounts, as there is consistency in the metaphors used to describe particular symptoms. It also shows that metaphor provides a way to systematically analyse subjective descriptions in a way that reveals the fine-grained distinctions which the authors make between different types of word finding and production difficulties. These distinctions do appear to map onto different processes and levels in psycholinguistic theory.

Chapter 5 explores in greater depth a topic which emerged from the analysis of descriptions of word finding and production difficulties as a salient symptom for several authors: the loss of 'inner speech'. It explores experiences of impaired and preserved inner speech in four accounts which described relevant symptoms. This analysis demonstrates the potential theoretical insights available from using this method for analysing the subjective perspective, as it finds that there are two distinct concepts of inner speech which are described using different metaphors consistently across accounts, and which are described as differentially impaired. These concepts of inner speech, phonological inner speech and dialogic inner speech, represent one of many different theoretical distinctions which have been suggested in the inner speech literature, and are not always clearly distinguished. The findings of this chapter suggest that this distinction has a psychological reality, and that impairment of each process has different emotional and cognitive impacts, and therefore this analysis contributes useful constraining data to theories of inner speech as well as clinically important information.

Chapter 6 investigates metacognition in two accounts which describe metacognitive reasoning as having played an important role in the recovery of word finding abilities. The findings illustrate that two different approaches to using metaphor for metacognition can both be beneficial. This suggests that metaphor may be a useful tool for clinicians to support metacognition in people with aphasia.

In Chapter 7 the potential clinical applications and directions for future research are outlined. Additional analyses of the dataset can explore other modalities and aspects of language use, such as receptive language, reading and writing. The validity of the method could be tested through a case series which combines objective behavioural assessment

with elicitation of descriptions of subjective experience of symptoms. This could then provide the basis for the development of a metaphor-based clinical tool for the subjective assessment of aphasia.

## Chapter 2. Literature Review of Autobiographical Accounts of Aphasia

Autobiographical accounts contributed much-discussed information to the early scientific literature on aphasia. Such early accounts were primarily written by a narrowly defined group of people: well-educated men who were part of the scientific circles in which early neurological ideas were discussed and developed. In the present day the means to produce an autobiographical account are more widely available. This is in part due to increased and diversified access to education and literacy over decades. The availability and affordability of technology which facilitates writing and dissemination is another factor, from typewriters and personal computers through to user-friendly self-publishing and print-on-demand platforms. The adoption of these means of writing and publishing by many people with aphasia demonstrates the strength of the desire to communicate something useful, important, or interesting about their experience to a wider audience. However, these modern accounts are not integrated with the scientific literature on aphasia in the same way that their predecessors were.

There are few reviews of this literature. Moss (1981) identified fourteen accounts, including accounts written by family members. He notes that many of these books, which were written in the twenty years preceding the review, were already out of print and therefore unavailable. He illustrates the range of contributions which these accounts can make, including examples of self-developed strategies and successful ‘rehabilitation methods’ to improve word finding and production in conversation (by Buck, 1963). Hinckley (2006) found 28 published autobiographical accounts (ten journal articles and eighteen books) written by people with aphasia, of which 20 could be accessed at the time. With the advantage of modern search tools, this number includes first-hand accounts, in particular

journal papers, which were published prior to Moss' review. However, one of the articles (by Shirley Porus, 2003) was published only on the author's website and is no longer available, showing a disadvantage of online self-published accounts in their lack of permanence.

Some modern autobiographical accounts have received citations, most of which related to psychosocial aspects, but also including several papers which do attempt to integrate the insights available within them with theory. Such citations are limited in number, and use selected quotations from the accounts as illustrative (e.g., Ardila & Rubio-Bruno, 2018; Morin, 2009; Skipper, 2022). The lack of integration of these accounts with the literature is reflected not only in the difficulty of obtaining previously published accounts, and of the small number of reviews. It can also be seen in the increasing tendency for these accounts to be published within the self-help genre. The presentation of an autobiographical account as self-help for others with aphasia allows for the communication of insights and strategies for recovery which bypasses the scientific literature, to the detriment of both.

This lack of integration is not because all of the useful information available in first-hand accounts of aphasia has already been extracted from earlier contributions. Many of the outstanding challenges for aphasiology are precisely those which in-depth first-hand accounts can contribute to. For example: understanding the heterogeneity within similar subtypes or syndromes of aphasia; the relative importance of different symptoms for the selection of effective interventions; the mechanisms and individual factors which affect recovery; and how generalisation of treatments gains can be supported. Autobiographies written by people with aphasia can contribute a unique source of detailed and longitudinal description of symptoms at each stage of recovery, in multiple clinical and naturalistic contexts, perfectly suited to addressing these questions.

There are likely to be several reasons for the lack of integration of autobiographical accounts into the scientific literature. The professionalisation of research might seem one obvious reason for the side-lining of first-hand accounts. However, recent trends in healthcare research, including within aphasia, often make a deliberate effort to include the perspective of the person experiencing the condition. This is reflected in the fact that there has been more recognition of the value of these accounts with regard to issues such as quality of life, personal identity, and experience of services (e.g. Hersch, 2015; Hinckley, 2006). This is part of a wider trend of attention to subjective experience of people with aphasia, and the use of qualitative methods to explore this, with regard to topics relating to impact and participation. Simmons-Mackie and Lynch (2013) review qualitative research in aphasia and find a rapid recent increase in the use of qualitative methods to explore the first-hand experience of aphasia. However very little research has applied qualitative methods, or considered the subjective perspective of people with aphasia, to the understanding at an impairment level of the experience of aphasic symptoms. This may partly be an artefact of the interests and academic backgrounds of researchers, but an additional barrier may be the lack of availability of rigorous methodologies to enable the analysis of this large amount of discourse data in a format which allows for its interpretation and integration with the results of quantitative experimental studies.

In this chapter the autobiographical accounts which have been produced in different eras of aphasia research are discussed. The content of these accounts is summarised, along with an overview of demographic changes in the authors who produce such accounts, and in the reception which these accounts have found in the literature. The aim of this literature review is to examine how autobiographical accounts of aphasia have contributed to our understanding of aphasia and language processing.

## Method

Autobiographical accounts of aphasia were identified through searches using the search term “aphasia” in combination with each of the following terms: “autobiography”, “account”, “journal”, “diary”, “first-hand”, “phenomenology” and “subjective.” Multiple searches were carried out using search engines, online library catalogues, and book selling and self-publishing platforms websites, between 2020 and 2023. Additional accounts were identified through references within accounts or in reviews and the wider literature (in particular Moss, 1981; Hinkley, 2006; and Ardila & Rubio-Bruno, 2017).

All autobiographical accounts which were written by a person with aphasia (including with the collaboration of a professional or family member) are included. Searches were conducted in English only, and the accounts included are primarily written in English, but accounts written in other languages were not excluded, where they have informed the literature or been discussed in English-language research. Accounts which described primarily alexia or agraphia were included. Self-published and less formally published accounts were included as these have some advantages over traditionally published accounts, in being less likely to have been heavily edited or altered for commercial reasons. On the other hand, it was necessary to exclude materials such as blog posts or internet forum discussions, or files which were only available on the author’s personal website. The inclusion of such materials would complicate reproducibility of research based on the results and would also introduce ethical issues around the use of personal information which has been shared without the motivation of public dissemination.

Accounts written primarily by a family member, professional, or anyone other than a person with aphasia were not included (although in many of the accounts contextual

information or additional chapters were contributed by others). Poetry and group compositions were excluded, as in these genres it was harder to determine the level of editorial support and to be able to directly attribute statements to an individual with aphasia. Anthologies of individual prose accounts were included, including those where authorial pseudonyms or first names only were provided.

The results are grouped chronologically for discussion, as the production and reception of such accounts has changed throughout the history of aphasiology. The secondary literature which cites these accounts is discussed where this is relevant, however not all citations are discussed as the majority of literature which cites autobiographical accounts is concerned with psychosocial aspects of the experience of aphasia, rather than the experience of impairment and what it can tell us about language processing.

## Results and Discussion

Table 1 provides a complete list of the autobiographical accounts of aphasia which were identified through the search methods described above. Figure 1 displays the distribution of these accounts over time, and by genre. It shows an increase in the number of accounts produced in the last two decades (even assuming that not all earlier accounts have been identified), and that this growth is primarily driven by the production of long form autobiography for a general audience, rather than as journal articles for a scientific community.

**Figure 3**

*Autobiographical accounts written by people with aphasia from the earliest account (1784) to the present day (2023).*

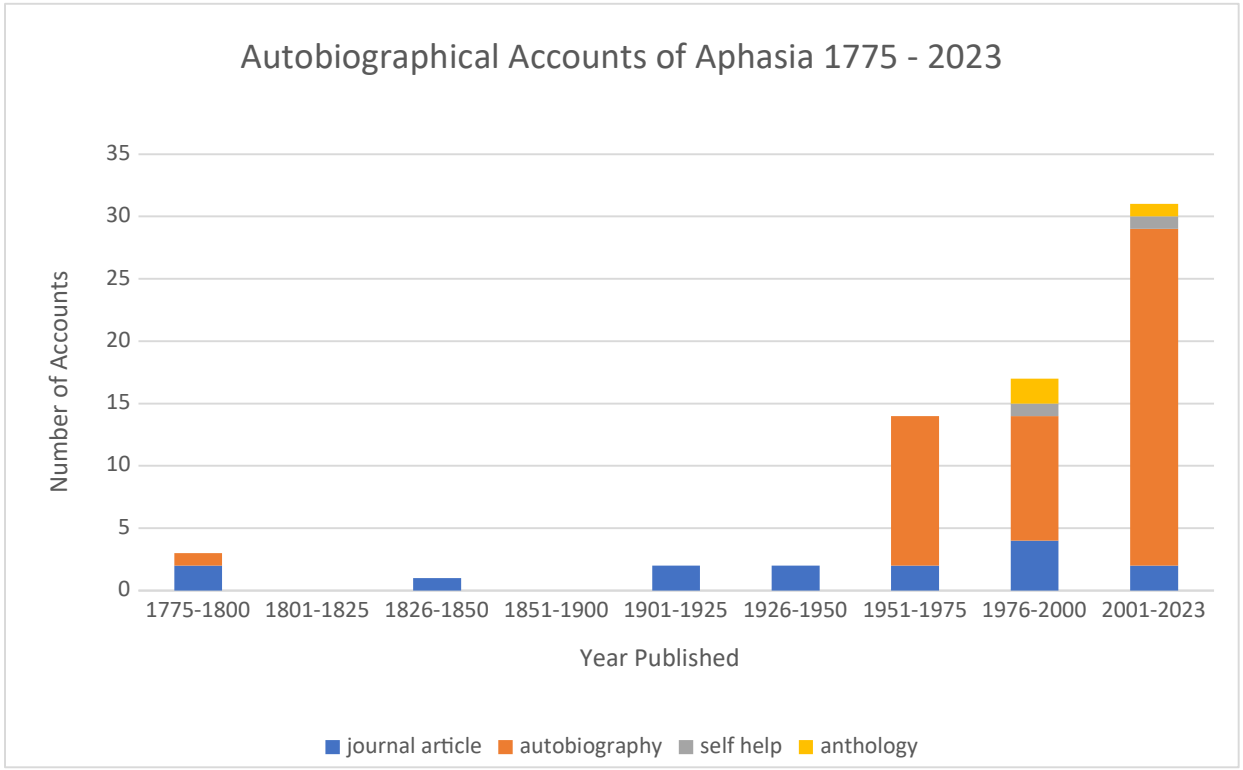


**Table 1**

*A complete list of autobiographical accounts which were identified in this literature review.*

| Author | Title | Genre |
|---|---|---|
| Spalding (1783) | Ein Brief an Sulzer über eine an sich selbst gemachte Erfahrung. (A letter to Sulzer about an introspective experience) | Journal article |
| de Fouchy (1784) | Observation anatomique (Anatomical observation) | Journal article |
| Johnson (1782/1962, Critchley) | [Personal correspondence] | Autobiography |
| Lordat (1843) | Analyse de la parole pour server a la théorie de divers cas d'alalie et de paralie (de mutisme et d'imperfection du parler) que les nosologistes ont mal connus (Analysis of speech to support theoretical understanding of the diversity of cases of alalia and paralia (mutism and disordered speech) of which nosologists have limited knowledge). | Journal article |
| Forel (1915) | Autobiographie subjective et inductive de troubles psychiques et nerveux après une thrombose du cerveau (ou apoplexie??) (Subjective and inductive autobiography of psychological and nervous disorders after brain thrombosis (or apoplexy??)) | Journal article |
| Saloz (Naville, 1918) | Memoires d'un medecin aphasique. (Memoires of an aphasic doctor) | Journal article |
| Andrewes (1931) | On being bereft of speech. | Journal article |
| Rose (1948) | A physician's account of his own aphasia. | Journal article |
| Babington (1954) | No Memorial. The story of a triumph of courage over misfortune and mind over body | Autobiography |
| Hall (1961) | Return from silence: a personal experience. | Journal article |
| Ritchie (1961) | Stroke: A Study of Recovery. | Autobiography |
| Butler (Sies & Butler, 1963) | A personal account of dysphasia. | Journal article |
| Buck (1963) | The language disorders: a personal and professional account of aphasia. | Autobiography |
| Van Rosen (1963) | Comeback; the Story of My Stroke | Autobiography |
| Hodgins (1964) | Episode: Report on the Accident Inside My Skull. | Autobiography |
| Wint (1967) | The Third Killer. | Autobiography |

| | | |
|---|---|---|
| Whitehouse (1968) | There's Always More. | Autobiography |
| Sorrell (1969) | Out of Silence. | Autobiography |
| Zasestsky (Luria, 1972) | The man with a shattered world: The history of a brain wound. | Autobiography |
| Moss (1972) | Recovery with Aphasia: The Aftermath of My Stroke. | Autobiography |
| Wulf (1973) | Aphasia, My World Alone. | Autobiography |
| Dahlberg (Dahlberg & Jaffe, 1977) | Stroke: A Doctor's Personal Story of His Recovery. | Autobiography |
| Segre (1983) | Mi propia rehabilitación como afásico (My own rehabilitation as an aphasic). | Autobiography |
| Wender (1986) | At the edge of silence. | Journal article |
| Wender (1987) | "Craziness" and "visions:" experiences after a stroke. | Journal article |
| Wender (1989) | Aphasic victim as investigator. | Journal article |
| Alexander (1990) | Aphasia – the worm's eye view of a philosophic patient and the medical establishment. | Journal article |
| Hughes (Hughes & Milios, 1990) | God Isn't Finished With Me Yet. | Autobiography |
| Various (Edelman & Greenwood, 1992). | Jumbly words and rights where wrongs should be: The experience of aphasia from the inside. Far Communications. | Anthology |
| Raskin (1992) | The Words I Lost | Journal article |
| Newborn (1997) | Return to Ithaca: A woman's triumph over the disabilities of a severe stroke | Autobiography |
| Various ( Parr et al., 1997) | Talking About Aphasia | Anthology |
| Dahlin (1997) | Den onödiga proppen (The unnecessary thrombosis) | Autobiography |
| Berger (Berger & Mensh, 1999) | How to Conquer the World With One Hand…And An Attitude. | Autobiography |
| Babington (2000) | Babington A. An Uncertain Voyage. | Autobiography |
| Cuddihy (2000) | Merry-Go-Sorry, A Memoir of Joy and Sadness. | Autobiography |
| Serper (2000) | BrainStorming: The Serper Method of Brain Recovery, Regrowth, and Vitality. Enhancement Services, Inc.; 2000. | Self-help |
| Perez (2001) | Brain Attack: Danger, Chaos, Opportunity, Empowerment. | Autobiography |
| Tropp-Erblad (2002) | Katt bö rjar på S (Cat begins with S) | Autobiography |

| | | |
|---|---|---|
| Douglas (2002) | My Stroke Of Luck. | Autobiography |
| Hutton (Hutton & Caplan, 2003) | Striking Back at Stroke: A Doctor Patient Journal. | Autobiography |
| Mills (2004) | A Mind of My Own: Memoir of Recovery from Aphasia. | Autobiography |
| Smith (2005) | The Stroke of Midnight: A Brain Attack. | Autobiography |
| Green (Green & Waks, 2008) | A second chance: Recovering language with aphasia | Journal article |
| Weinstein (2008) | My stroke: 450 days from severe aphasia to speaking, reading and writing. | Autobiography |
| West (2008) | The shadow factory. | Autobiography |
| Taylor (2009) | My Stroke Of Insight. | Autobiography |
| Schultz (2010) | Crossing The Void. | Autobiography |
| Budzenski (2011) | The Evergreen Outside My Window | Autobiography |
| Green (2011) | Headlights: How I turned the lights back on after my stroke and aphasia | Autobiography |
| Resch (2012) | Without Utterance. | Autobiography |
| Maloney (2013) | Finding My Voice With Aphasia: Walking Through Aphasia. | Autobiography |
| Berger (Berger & Mensh, 2013) | Conquering Aphasia & Stroke TODAY! Volume 1: Paul Berger's Guide for Stroke Survivors | Self-help |
| Lubbock (2014) | Until further notice, I am alive. | Autobiography |
| Broussard (2015) | Stroke Diary: A Primer for Aphasia Therapy. | Autobiography |
| Various (Ganzfried & Greenfield, 2016) | The Word Escapes Me: Voices of Aphasia | Anthology |
| Broussard (2016) | Stroke Diary: The Secret of Aphasia Recovery. | Autobiography |
| Susca (2016) | The Professor's Tumor: A Journey Out of Aphasia and More | Autobiography |
| Engel (2016) | Man Who Forgot How To Read | Autobiography |
| Marks (2017) | A Stitch Of Time. | Autobiography |
| Lathan (Lathan & Stuart, 2018) | A physician's story of his own illness: Aphasia from possible stroke but more likely from encephalitis. | |
| Broussard (2018) | Stroke Diary: Just So Stories, How Aphasia Got Its Language Back. | Autobiography |
| Sclavi (2018) | The Finch in My Brain: How I forgot how to read but found how to live | Autobiography |
| Thornton (2022) | STEP...by...STEP: Your Journey to My World as a Stroke Survivor | Autobiography |
| Broek (2022) | (al)ONE: Thriving a Stroke | Autobiography |

| | | |
|---|---|---|
| Lawton (Lawton & Rosewitz, 2022) | Hernzebekana! -- Her Language of Love: When Words Fail: The Memoir of a Multiple-Stroke Survivor with Aphasia | Autobiography |
| Anbar (2022) | Goddess Aphasia: A Stroke Survivor and His Dual Muse | Autobiography |
| Mumby (2023) | Metalinguistic Awareness as Self-Management in People with Apraxia of Speech and Aphasia: Lived Experience from a Longitudinal Case Series | Journal article |
| Vance (2023) | Stroke and Aphasia | Autobiography |

It was not possible to obtain all of the accounts identified, and some were not available in English. However many were available, in full or in part, online, and different translations of extracts of earlier accounts appear in the secondary literature. Below, an overview of the types of account published in different eras is provided, with some description of representative or noteworthy accounts, and discussion of their impact on the theoretical literature.

### *18th Century Accounts*

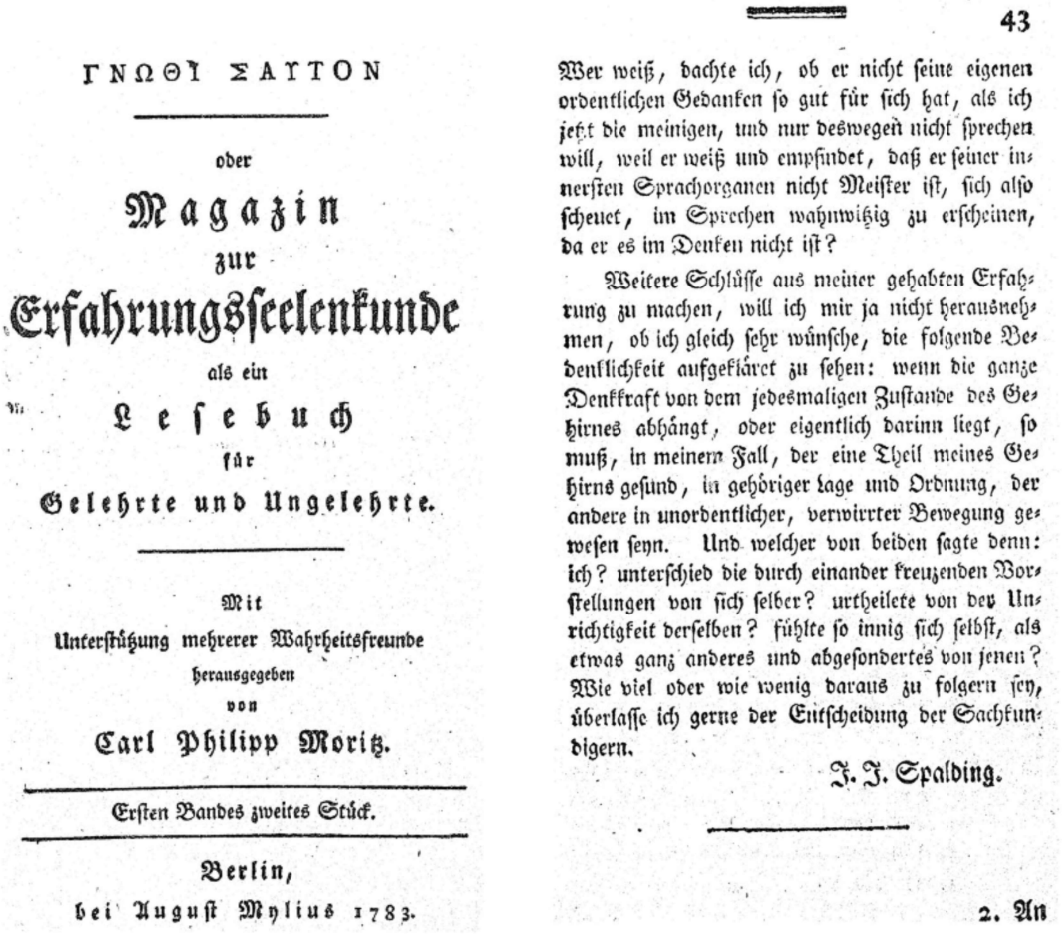
The earliest discussions which shaped the vocabulary, the concepts, and the debates of subsequent research in aphasia were informed by several autobiographical accounts. From before aphasia became a clearly defined object of study, people have contributed first-hand accounts of its experience. The earliest of these are the accounts which were contributed by Spalding (1783) and De Fouchy (1784), thus predating the work of Broca (1861) which is usually considered to mark the beginning of aphasiology as a field. Another account from the same era was that of Samuel Johnson (1782/1962, Critchley), whose published correspondence contained a description of his own experience of aphasia. These accounts are of interest not only because they were discussed in the later literature, but because of

the information they contain which retrospectively was in advance of not only the neurological theories of the time, but even of later ideas.

Johnson's letters (1782/1962, Critchley) do not contain the same level of reflection on the experience of the symptoms of his language difficulty as the accounts of Spalding (1783) and De Fouchy (1784), although the details of his treatment are of general medico-historical interest: he self-treated his initial symptoms with two drams of wine to increase 'eloquence,' and doctors later prescribed the application of 'blisters' to his back, throat and face.

**Figure 4**

*The Title Page of the Magazin zur Erfahrungsfeelenfunde (Journal for Experiential Psychology) which published psychiatric and psychological case reports (including first-hand accounts) between 1783 and 1793, and the final page of Spalding's (1783) autobiographical description of transient aphasia which was published in this journal.*



ΓΝΩΘΙ ΣΑΥΤΟΝ

oder

Magazin

zur

Erfahrungsseelenkunde

als ein

Lesebuch

für

Gelehrte und Ungelehrte.

Mit

Unterstützung mehrerer Wahrheitsfreunde

herausgegeben

von

Carl Philipp Moritz.

Ersten Bandes zweites Stück.

Berlin,

bei August Mylius 1783.

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Wer weiß, dachte ich, ob er nicht seine eigenen ordentlichen Gedanken so gut für sich hat, als ich jetzt die meinigen, und nur deswegen nicht sprechen will, weil er weiß und empfindet, daß er seiner innersten Sprachorganen nicht Meister ist, sich also scheuet, im Sprechen wahnwitzig zu erscheinen, da er es im Denken nicht ist?

Weitere Schlüsse aus meiner gehabten Erfahrung zu machen, will ich mir ja nicht herausnehmen, ob ich gleich sehr wünsche, die folgende Bedenklichkeit aufgeklaret zu sehen: wenn die ganze Denkkraft von dem jedesmaligen Zustande des Gehirnes abhängt, oder eigentlich darinn liegt, so muß, in meinem Fall, der eine Theil meines Gehirns gesund, in gehöriger Lage und Ordnung, der andere in unordentlicher, verwirrter Bewegung gewesen seyn. Und welcher von beiden sagte denn: ich? unterschied die durch einander kreuzenden Vorstellungen von sich selber? urtheilete von der Unrichtigkeit derselben? fühlte so innig sich selbst, als etwas ganz anderes und abgesondertes von jenen? Wie viel oder wie wenig daraus zu folgern sey, überlasse ich gerne der Entscheidung der Sachkundigern.

J. J. Spalding.

2. An

Spalding, a theologian and philosopher, describes a transient episode of aphasia in an account which was published in a German scientific journal (1783/1950, Eliasberg; see Figure 4), and which was translated into English soon afterwards (1798, Critchley). He reports that he first noticed that he was unable to write a receipt, noting the simultaneous presence of two distinct difficulties: "I was not able either to find the following words in my

mind, or to carry out the necessary strokes with my pen." He then tried to speak and found that this too was impossible: "much as I forced my attention and my thoughts and proceeded with the utmost slowness I became aware very soon of shapeless monstrous words that were absolutely different from those that I intended." He reports an inner awareness of "ideas that encroached upon me" and which were "annoying… and buzzing," but also notes that alongside this experience he has an intact ability to think about abstract religious matters: "the basic tenets of my mind and my philosophy would remain as they had been before and they would, to the time of my complete separation from the riotous play in my brain be a homely source of repose and of hope for eternal salvation" (1783/1950, Eliasberg). Thus, in this earliest autobiographical account of aphasia it is already apparent that the subjective perspective can contain nuanced information about the profile of preserved and impaired linguistic and cognitive abilities, long before theoretical models of these processes were created.

De Fouchy was an astronomer who contributed a description of a transient aphasia which he experienced after a head injury, to the proceedings of the French Académie des Sciences (1784; English translation by Hoff, Guillemin & Geddes, 1958). He reports that he tripped and fell onto a pile of blocks, which hit 'the vomer and the corner of the orbit of the right eye' causing a 'sharp pain which extended to the left eye.' The following day he reported that for around one minute he became 'unable to pronounce the words that I wanted.' He provides the detail that his motor, perceptual and cognitive functions appeared intact: 'I had nevertheless all movements as freely as usual, I did not drop my fork or a piece of bread which I was holding; I saw all objects clearly, I heard distinctly what was being said; and the organs of thought were, it seemed to me, in a natural state.' He also notes that his receptive language appeared intact, and that he knew the ideas which he wanted to reply

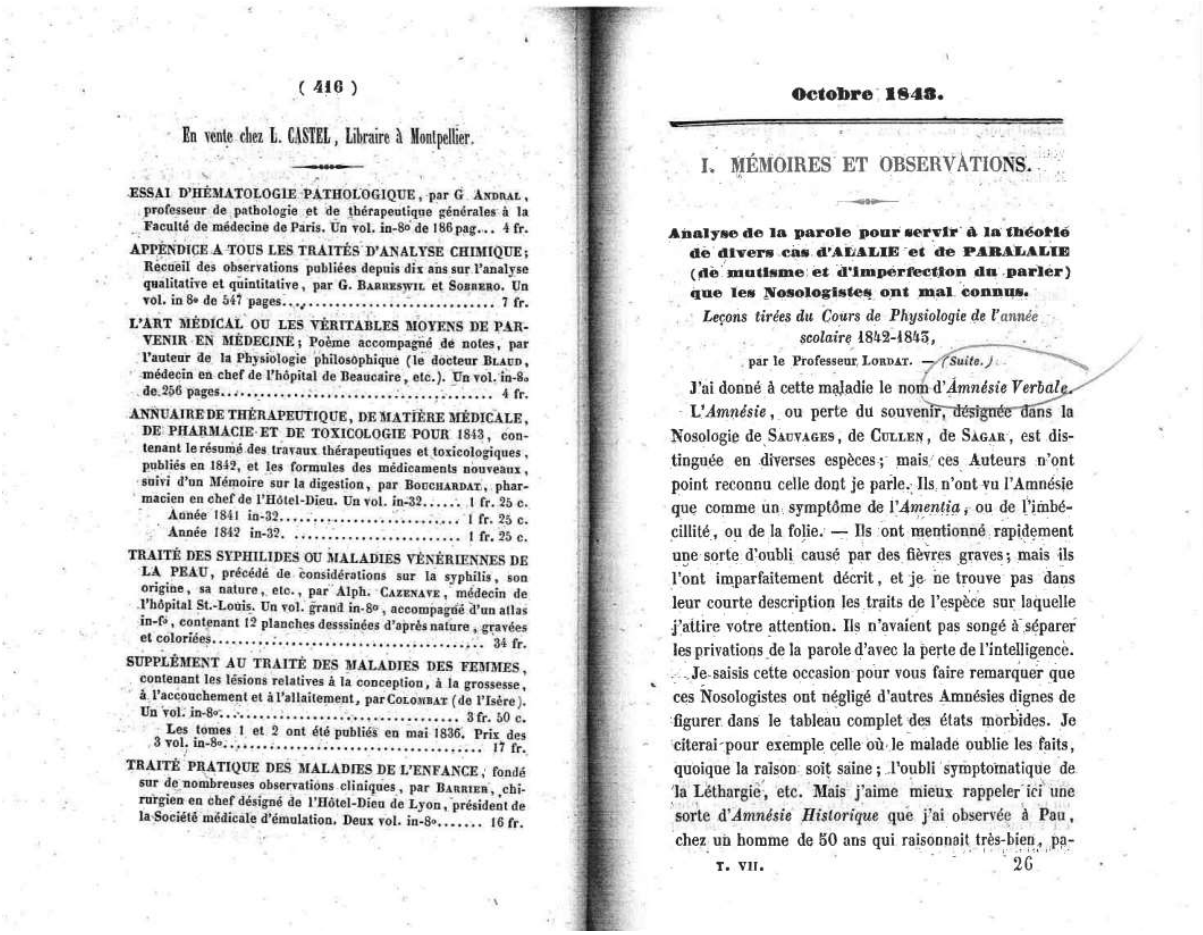
with, but produced incomplete or incorrect words for these ideas: 'I heard what was said, and I thought of what I ought to reply, but I spoke other words than those which would express my thoughts, or if I began them I did not complete them, and I substituted other words for them.' He relates his experience to neuroanatomical theories of the time, suggesting that the nerves travelling through that area of the face had been damaged, and that this damage had extended along the nerves to the brain. However, he notes that the specificity of language being affected in isolation is not accounted for by this theory: 'I found there no reason at all for the unusual phenomenon of the sensorium being affected in a single one of its parts, without the others being involved in any manner.' (Hoff, Guillemin & Geddes, 1958).

Thus, in these earliest autobiographical accounts of aphasia we can see that the precise report of the subjective experience contains theoretically useful information capable of extending scientific understanding. These accounts were discussed by other prominent thinkers of the time, whose reflections on the details which they provided anticipating later details of theoretical discussions (Eliasberg, 1950).

***A 19th Century Account***

**Figure 5**

*The First Page of Lordat's (1843) autobiographical account*



( 416 )

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**Octobre 1843.**

## I. MÉMOIRES ET OBSERVATIONS.

**Analyse de la parole pour servir à la théorie de divers cas d'ALALIE et de PARALALIE (de mutisme et d'imperfection du parler) que les Nosologistes ont mal connus.**

*Leçons tirées du Cours de Physiologie de l'année scolaire* 1842-1843,

par le Professeur LORDAT. — (*Suite.*)

J'ai donné à cette maladie le nom d'*Amnésie Verbale*.

L'*Amnésie*, ou perte du souvenir, désignée dans la Nosologie de SAUVAGES, de CULLEN, de SAGAR, est distinguée en diverses espèces; mais ces Auteurs n'ont point reconnu celle dont je parle. Ils n'ont vu l'Amnésie que comme un symptôme de l'*Amentia*, ou de l'imbécillité, ou de la folie. — Ils ont mentionné rapidement une sorte d'oubli causé par des fièvres graves; mais ils l'ont imparfaitement décrit, et je ne trouve pas dans leur courte description les traits de l'espèce sur laquelle j'attire votre attention. Ils n'avaient pas songé à séparer les privations de la parole d'avec la perte de l'intelligence.

Je saisis cette occasion pour vous faire remarquer que ces Nosologistes ont négligé d'autres Amnésies dignes de figurer dans le tableau complet des états morbides. Je citerai pour exemple celle où le malade oublie les faits, quoique la raison soit saine; l'oubli symptomatique de la Léthargie, etc. Mais j'aime mieux rappeler ici une sorte d'*Amnésie Historique* que j'ai observée à Pau, chez un homme de 50 ans qui raisonnait très-bien, pa-

T. VII. 26

Decades later Lordat (1843) contributed an account which had a much greater impact on the subsequent literature (see Figure 5; for discussions see Riese, 1954; Bay, 1969; Prins & Bastiaanse, 2006). Lordat had already published and lectured on aphasia (Sondhaus & Finger, 1988), and there was growing scientific interest in neurology and language, so he was well placed to receive serious attention for his autobiographical account alongside discussions of other cases and of his theoretical reasoning.

Lordat described receptive as well as expressive difficulties, "I was no longer able to receive the ideas of others, because the very amnesia that prevented me from speaking, made me incapable to comprehend quickly enough the sounds that I heard so that I could

grasp their meaning.” Benton (1964) notes that this aspect of Lordat’s account was one of the first publications to describe receptive language impairment, and that this was ‘ignored or rejected’ in the scientific literature of the time.

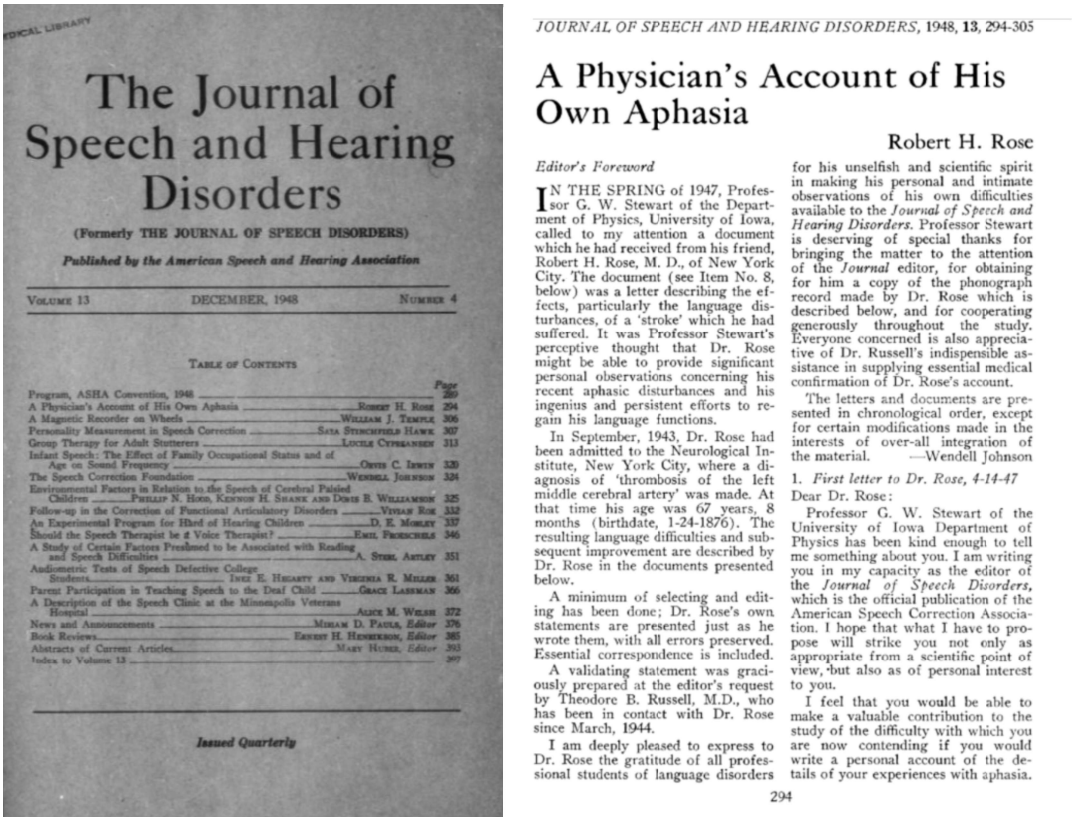
Lordat also described paraphasic speech with semantic substitutions, and notes that his self-monitoring was intact “It was not only a condition of amnesia, but a condition I should like to term "paramnesia," that is, a faulty use of known and remembered sounds. Thus, when I wanted to ask for a "book," I pronounced the words for "handkerchief." However, immediately after having uttered this word, I retracted it, feeling that another was indicated. In other instances of disease of this type, I can mention patients who found themselves in a worse plight and who did not even realize that the word they used was not the correct one.” (Prins, R., & Bastiaanse, 2006).

The aspect of Lordat’s account which received the greatest contemporary attention was his report that his cognition was unaffected despite his language symptoms. This was a central topic of scientific and philosophical interest at the time, and was discussed, and disputed, by Trousseau (Trousseau, 1864; Bay, 1969).

## *20th Century Accounts*

**Figure 6**

*The Title Page of Journal of Speech and Hearing Disorders, and the First Page of Rose's (1948) Autobiographical Account which was Published in this Journal.*



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VOLUME 13 DECEMBER, 1948 NUMBER 4

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*Issued Quarterly*

*JOURNAL OF SPEECH AND HEARING DISORDERS*, 1948, **13**, 294-305

# A Physician's Account of His Own Aphasia

Robert H. Rose

*Editor's Foreword*

IN THE SPRING of 1947, Professor G. W. Stewart of the Department of Physics, University of Iowa, called to my attention a document which he had received from his friend, Robert H. Rose, M. D., of New York City. The document (see Item No. 8, below) was a letter describing the effects, particularly the language disturbances, of a 'stroke' which he had suffered. It was Professor Stewart's perceptive thought that Dr. Rose might be able to provide significant personal observations concerning his recent aphasic disturbances and his ingenius and persistent efforts to regain his language functions.

In September, 1943, Dr. Rose had been admitted to the Neurological Institute, New York City, where a diagnosis of 'thrombosis of the left middle cerebral artery' was made. At that time his age was 67 years, 8 months (birthdate, 1-24-1876). The resulting language difficulties and subsequent improvement are described by Dr. Rose in the documents presented below.

A minimum of selecting and editing has been done; Dr. Rose's own statements are presented just as he wrote them, with all errors preserved. Essential correspondence is included.

A validating statement was graciously prepared at the editor's request by Theodore B. Russell, M.D., who has been in contact with Dr. Rose since March, 1944.

I am deeply pleased to express to Dr. Rose the gratitude of all professional students of language disorders for his unselfish and scientific spirit in making his personal and intimate observations of his own difficulties available to the *Journal of Speech and Hearing Disorders*. Professor Stewart is deserving of special thanks for bringing the matter to the attention of the *Journal* editor, for obtaining for him a copy of the phonograph record made by Dr. Rose which is described below, and for cooperating generously throughout the study. Everyone concerned is also appreciative of Dr. Russell's indispensible assistance in supplying essential medical confirmation of Dr. Rose's account.

The letters and documents are presented in chronological order, except for certain modifications made in the interests of over-all integration of the material. —Wendell Johnson

1. *First letter to Dr. Rose, 4-14-47*

Dear Dr. Rose:

Professor G. W. Stewart of the University of Iowa Department of Physics has been kind enough to tell me something about you. I am writing you in my capacity as the editor of the *Journal of Speech Disorders*, which is the official publication of the American Speech Correction Association. I hope that what I have to propose will strike you not only as appropriate from a scientific point of view, but also as of personal interest to you.

I feel that you would be able to make a valuable contribution to the study of the difficulty with which you are now contending if you would write a personal account of the details of your experiences with aphasia.

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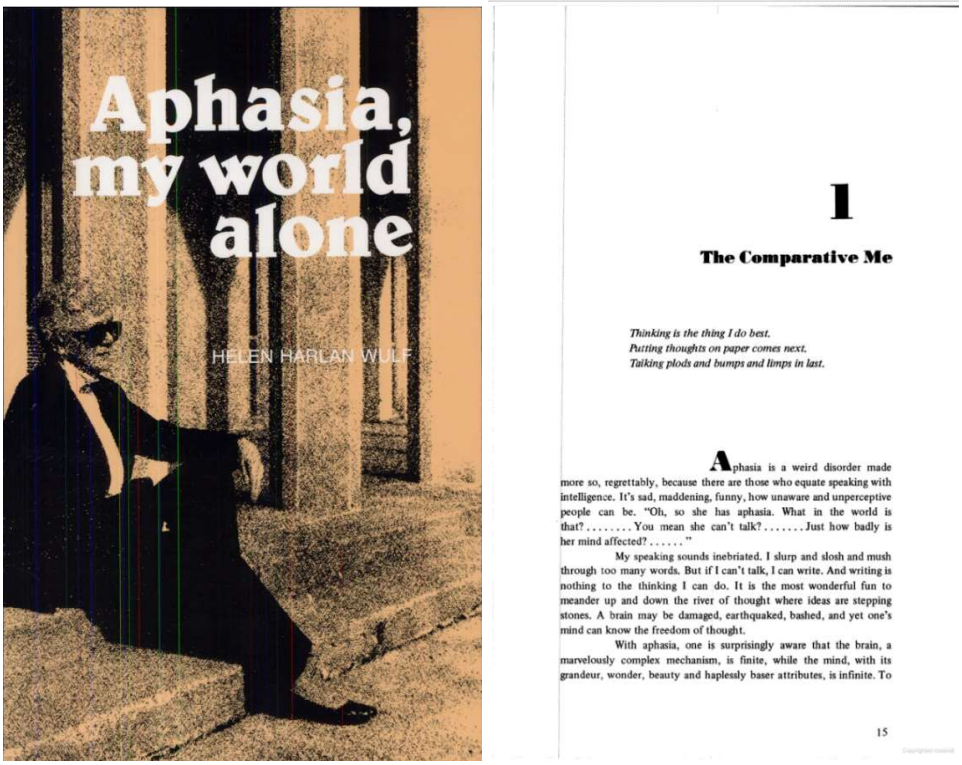
Four accounts were published in the first half of the 20th Century. Like the accounts which preceded them, these were primarily produced by scientists and took the form of journal articles (see Figure 6). Unlike those earlier accounts these scientists were no longer generalists or gentleman scholars, but increasingly were specialists in fields related to the topic. Three of these four accounts were produced by doctors (Naville, 1918; Andrewes, 1931; Rose, 1948), and one by a scientist who made contributions to neurology as well as in other fields (Forel, 1915).

Representative of the journal articles contributed by doctors is Naville's (1918) presentation and annotation of Saloz' memoirs, which were begun in 1911 and document a severe motor aphasia. While Naville does include extended direct quotations, much of the material is indirectly paraphrased, so the precise wording used for some of the descriptions is not available. Saloz reported that his 'will' and his grasp of 'facts' remained intact despite his severe language impairment. He describes multiple strategies which he employed at different stages of recovery, including reciting the alphabet to retrieve the initial letter and resolve a tip-of-the-tongue state, singing as a way of rehearsing words which made them easier to produce, and the need to whisper aloud in order to 'think' linguistically or to support reading comprehension. He also remarked on details such as the relative ease of vowels and the difficulty of 'm' and 'n' in relearning grapheme-phoneme correspondences, and later the difficulty of reading function versus content words in a text.

**Figure 7**

*The Cover and First Page of Wulf's (1973) autobiography.*



The production of accounts by medical and other relevant professionals continued into the mid-20th Century, but there was also an increase in autobiographies written for a general audience by people from a wider range of backgrounds. Another change in the mid-20th Century which reflects the changing demographic of people with aphasia was the appearance of autobiographical accounts of aphasia from men who suffered traumatic brain injuries, and who recovered language despite initially severe symptoms due to medical advances (recovery from a severe penetrating shrapnel wound is described by Babington, 1954; a road traffic accident by Sies & Butler, 1963). Over the second half of the 20th Century the people producing such accounts became more diverse, including the appearance of accounts written by women.

Wulf (1973) illustrates these trends (see Figure 7). Her long form account is published as an autobiography for a general audience. While it is engagingly written, and contains her reflections on many aspects of her aphasia and its impact, it also contains detailed descriptions of her symptoms and recovery. Also representative of work in this era, is her description of rehabilitative therapy. Descriptions and evaluation of therapy is a key topic in many 20th Century Accounts.

### *21st Century Accounts*

The trends described above continue into the 21st Century, and additional changes appear. However, it should first be noted that among the autobiographical accounts of aphasia written in the last twenty years are some which are similar in format and content to their earliest predecessors. Lathan & Stuart (2018; see Figure 8), in providing the subjective perspective of a doctor of his aphasic symptoms, with precise reports of his symptoms and their time course, would be of a recognisable genre to Spalding, De Fouchy and Lordat,

768 although with the advantage of additional information provided by modern imaging
769 technologies, allowing for comparison with contemporaneous neurological data (in contrast
770 to previous eras in which the underlying neurology of symptoms was only available post-
771 mortem).

772 **Figure 8**

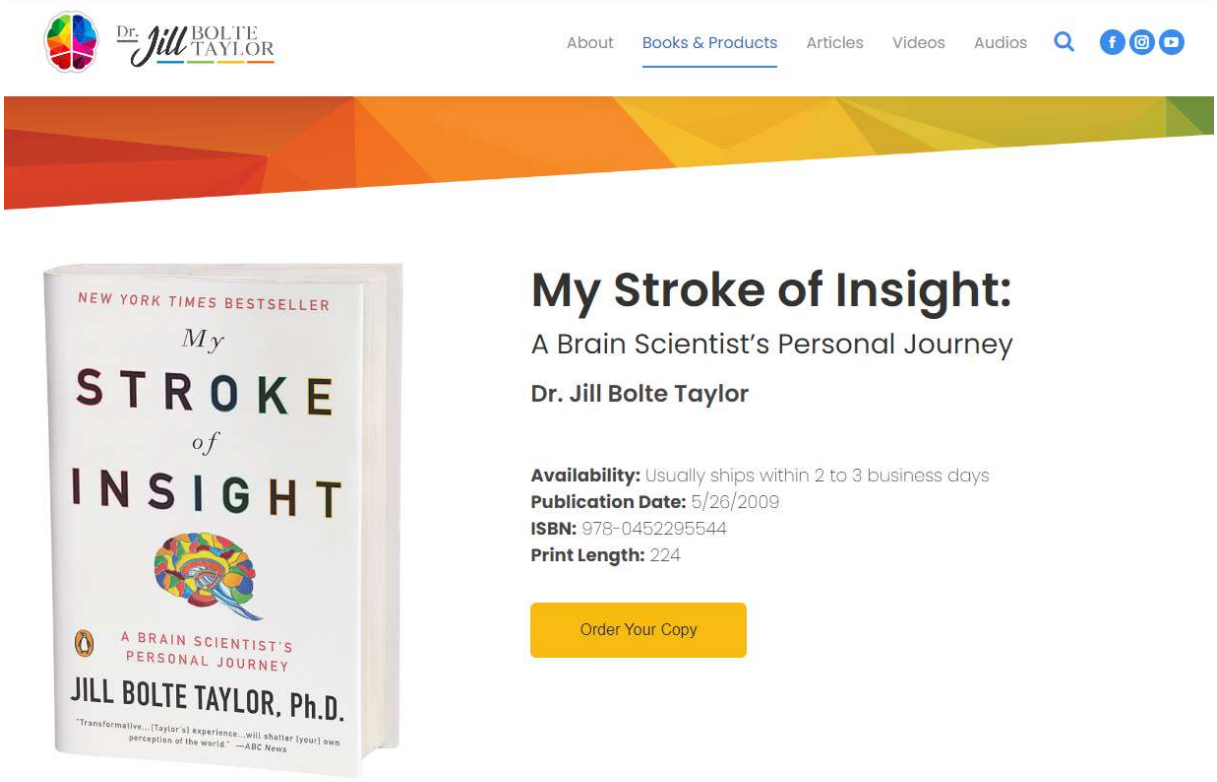
773 *The Online Contents Page of the Baylor University Medical Center Proceedings and Lathan's*
774 *(Lathan & Stuart, 2018) autobiographical account.*


776 While the production of such medical first-hand accounts has remained fairly
777 constant across the years, the increase in other forms of autobiographical account has
778 continued to grow and to diversify in the start of the 21st Century. In continuity with the
779 autobiographical accounts written in the last decades of the 20th Century, there have been
780 numerous long-form accounts written for a general audience (although often the authors
781 state that medical professionals and researchers are also included in their intended

audience). Increased access to the Internet, social media, and the popularity of video talks have all had their effect on both the dissemination of accounts, and even the format and content (see Figures 9, and 10).

**Figure 9**

*Jill Taylor's website featuring her books (including Taylor, 2009), video talks, audio and articles*




Taylor's (2009) autobiography, written by a neuroanatomist for a general audience, featured on the New York Times bestseller list, following the viral success of her video talk describing her experiences (Taylor, 2008).

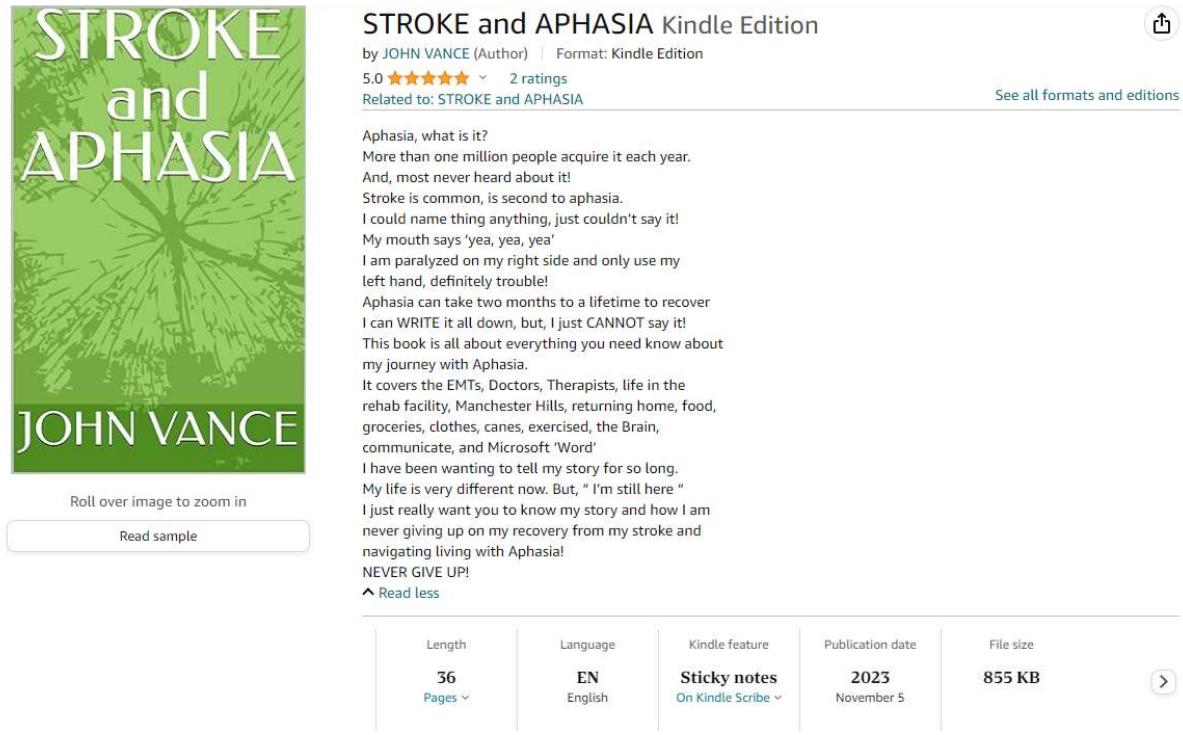
The accessibility of writing technologies, self-publishing and print-on-demand means that new types of autobiographical accounts now emerging. The five accounts from the last two years (Thornton, 2022; Broek, 2022; Lawton & Rosewitz, 2022; Anbar, 2022; Vance,

2023) have much in common: they are self-published, primarily they are available as e-books and/or print-on-demand, and they are longer than previous short-form accounts but shorter than most previous long-form accounts at mostly around 100 pages.

The most recent of these accounts may be an indication of what we can anticipate in the near future. Figure 10 shows the item page on Amazon.co.uk of Vance's (2023) autobiographical account, which is only available as an e-book. The flexibility of self-publishing through a platform such as Amazon can be seen in the properties of this account, which would not fit into the constraints of the previously available formats. For instance, the length of the account is 36 pages, longer than annotated extracts in a journal article, but shorter than a published book. The language used in the account, and in the item description, as can be seen in Figure 10, is communicative, yet more aphasic than in earlier accounts (with the possible exception of West, 2008). Two statements made in the short item description demonstrate the importance to the author of sharing this account: "I have been wanting to tell my story for so long" and "I just really want you to know my story." Also included in this book description is a brief statement about his experience of his difficulties: "I could name thing anything, just couldn't say it! My mouth says 'yea, yea, yea'" These two sentences show that an account containing linguistic errors can provide fine-grained information about the nature of the language impairment, as this description suggests internal awareness of phonological activation, or the 'name' of a thing, but a more peripheral difficulty leading to an inability to speak the word, along with or because of perseverative repetition. The accessibility of publishing in this format to people with aphasia who are highly motivated to 'tell their story' despite significant remaining language difficulties mean that this is likely a new emerging genre of autobiographical account.

**Figure 10**

*The Amazon.co.uk item page for Vance (2023), showing the length (36 pages), availability of e-book format only, and a sample of written language by the author.*




Intriguingly, the other autobiographical account produced in 2023 is of a format similar to that of Lordat (1843), which has not otherwise appeared in this literature. Mumby (2023), a Speech and Language Therapist and aphasiologist, includes her own experience of aphasia alongside her analysis of data collected from participants with aphasia, and with reference to cognitive and linguistic processes as they are described in psycholinguistic theory. Whether this paper is an anomaly, or whether trends in research will lead to the production of more work which synthesises the subjective experience of aphasia with other research methodologies will be seen.

## Conclusion

This review shows the value of autobiographical accounts, and the potential contribution which they can make to the wider scientific literature, and also the varying receptivity to these accounts within the academic community. To summarise the main results that demonstrate the need for greater attention to autobiographical accounts: many of these accounts provide descriptions which make fine-grained discriminations between different linguistic and cognitive processes, regardless of whether these distinctions had been established in the theoretical literature at the time of publication; and some accounts describe strategies which led to recovery of language abilities, providing detailed case studies of the successful use of a strategy in the context of a full description of the symptoms and other individual factors of the author.

With increasing accessibility of writing and publication tools, we should expect a continuation of the trends seen in this review, with an increasing number and diversity of autobiographical accounts available to researchers. This provides a unique source of data, independently produced by people with aphasia, communicating about the topics which they consider most important. The development of methods for the capture, analysis and integration of this source of data is therefore urgently required.

# Chapter 3. Methodology

In this Chapter the research paradigm is described in some detail, as it differs from the paradigms which underlie much qualitative, subjective and phenomenological work and this is reflected in choice of the methodology which is applied to the data (in contrast, for example to Knollman-Porter et al., 2015; Sundin et al., 2002). The epistemology, ontology and methodology are all described. The experimental methods are then reported in detail, along with measures taken to ensure rigour, and finally a researcher positionality statement is included.

## Research Paradigm

The qualitative analysis carried out in this research is conceived within a pragmatic framework. Pragmatism, with a focus on the applicability of findings, flexible approach to a combination of methods, and an understanding that knowledge is shaped by experience, is well-suited to people-centred research and to the integration of different theoretical approaches (Allemang et al., 2022). This approach is seen in the interpretation of findings with reference to the existing scientific literature, providing hypotheses for future mixed-methods research (as described in Chapter 7).

### Epistemology: Heterophenomenology

The philosopher Daniel Dennett proposes the term ‘heterophenomenology’ to describe treating verbal subjective first-person reports as objective third-person data. He argues that this approach is “nothing other than the method that has been used by psychophysicists, cognitive psychologists, clinical neuropsychologists, and just about everybody who has ever purported to study human consciousness in a serious, scientific way” (Dennett, 2003) and that it provides a “controlled way of taking subjects seriously” (Dennett, 2007).

This approach provides a framework for the interpretation of subjective reports of the experience of aphasia, and of neurological impairment in general. It allows us to 'take seriously' the descriptions which people give about their symptoms, but it does not privilege these above objective measures. This is important in analysis of neurological impairment, as anosognosia may be present about linguistic or cognitive deficits, and even if there are no difficulties with insight, many of the processes which we are interested in may occur largely automatically and therefore not be available to consciousness. It is furthermore a goal of this research to produce clinically applicable information, and a research paradigm within which any individual's phenomenological experience constitutes an unfalsifiable reality would not allow for generalisation of the findings into clinical applications which must assume predictable behaviours across individuals. Finally, if a person's statements are treated as epistemically privileged, or as necessarily uninterpretable within theories which have been constructed on the basis of objective approaches, then they cannot inform the development of theories or models. In the example given above, a person with aphasia who comments that their mind is 'blank of the ideas' is communicating information which can be integrated with models of word production and interpreted in terms of semantic and phonological access. To exclude the possibility that someone can be wrong about their experience also excludes the possibility that they can be right in a way which can inform objective clinical assessment and scientific theory. Dennett's heterophenomenological approach allows for the 'taking seriously' of reported subjective experience as a potential source of useful information and insight, as empirical data which may be integrated with other empirical data.

Broadly speaking, a cognitive neuropsychological perspective is employed in interpreting the data obtained in this analysis, in that there is a focus on 'symptoms not

syndromes,' and on the linguistic and cognitive profile of individuals rather than group effects, with particular attention to patterns of association and dissociation of different functions across individuals (Caramazza & Coltheart, 2006; Rapp & Goldrick, 2006).

## Ontology: Discourse Dynamic Theory of Metaphor

### *Conceptual Metaphor Theory*

Conceptual Metaphor Theory (CMT) makes the claim that the metaphors we use in everyday speech are not merely an illustrative device but reflect and shape the ways in which we understand and act. Pioneers of the theory (Lakoff & Johnson, 1980) identified metaphors and demonstrated these with a mixture of examples from real world usage, and sentences artificially generated for the purpose of illustration. They argued that systems of metaphors structure our cognitive experience, for example LIFE IS A JOURNEY, in which the abstract target domain of 'life' is partially mapped onto the more basic and concrete source domain of 'a journey.' Verbal instances of these underlying metaphors are argued to provide us with insight into the cognitive structure of concepts. These mappings are made on the basis of similarities, such as that both a life and a journey have a beginning and an end. But that the 'beginning' and 'end' of life are mapped onto the spatial domain of journey, rather than merely having a completely separate meaning, is seen in the ways that we describe 'progressing' through life, 'taking a big step forward in life,' 'overcoming barriers,' being 'directionless' versus 'knowing where one's going' and so on. These expressions are so common as to be idiomatic, and such metaphorical expressions can be described as 'sleeping' or 'dead,' but that they are readily 'revivified' (Goatly, 1997) can be seen in the ease with which we generate more unusual metaphorical expressions which either add detail and vividness to the existing mappings or introduce new mappings between the two domains, e.g. 'I plodded through my 20s' or 'he's navigating his way through life with an out-

of-date map.' CMT suggests that this is possible because these verbal instances of metaphors provide us with insight into the underlying cognitive structure of concepts. We do not just describe life in terms of a journey, but we conceptualise it as such, and on that basis can make inferences and decisions. Therefore, examining the metaphors used to describe an experience can provide us with useful information about how people are experiencing, conceptualising and reasoning about their symptoms and situation. Much of the literature in CMT addresses the role of metaphor in conceptualising new and abstract experiences, and in problem solving. When encountering a novel situation or task people often extend conventional metaphors or generate novel metaphors to conceptualise, reason and communicate about the salient aspects of the situation. Different ways of conceptualising a problem metaphorically may lead to different conclusions or solutions (Schön, 1993).

***Discourse Dynamic Theory of Metaphor***

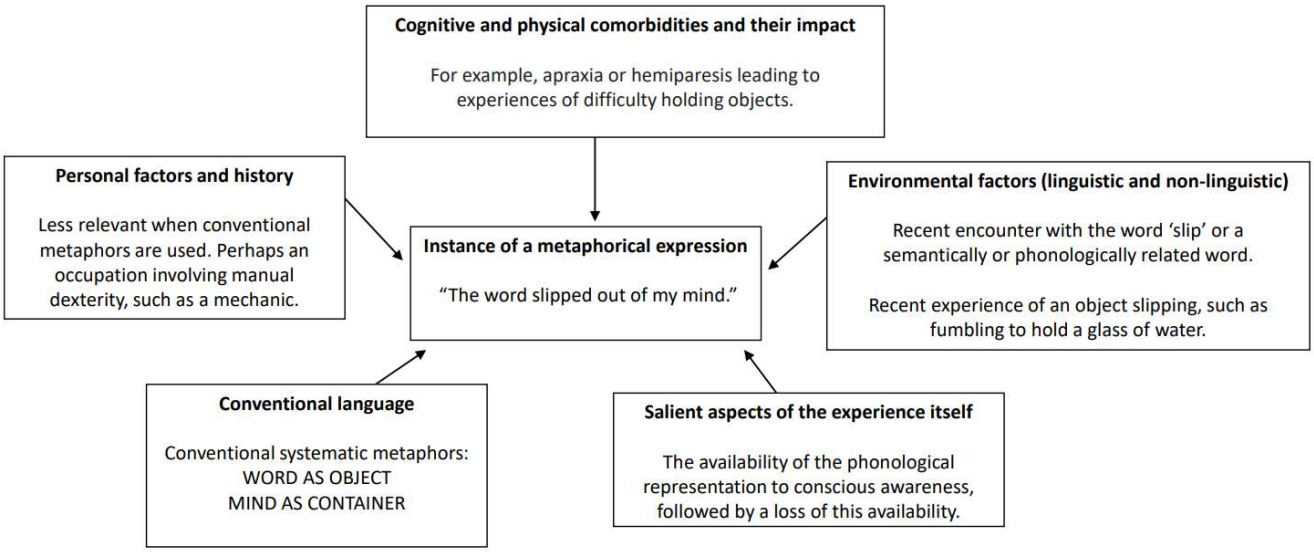
Cameron et al. (2009) propose that we add to this theory of metaphor an understanding of the dynamic nature of metaphor use in discourse: a metaphor does not merely reflect an already fully formed concept as represented by an entire linguistic community but provides a basis for further elaboration between speakers or throughout a text and is to be interpreted in relation to its context. Any instance of metaphor use is the result of various interplaying factors. This allows for competing and even conflicting metaphors being used to describe the same underlying experience, and non-hierarchical relationships between different domains (Vervaeke & Kennedy, 1996).

Figure 1 illustrates the key factors which could affect the selection of a particular metaphor for use in describing an experience of word finding or production difficulty. The

analysis assumes that for English speaking authors with aphasia there will be similarity in the influence of conventional language, and that contextual information provided in the accounts about personal factors and history, comorbidities and the social and physical environment will allow these to be considered in interpretation. The topic of interest is the remaining factor: salient aspects of the experience itself. Studies have been carried out on metaphor usage in cognitive and psychiatric conditions which suggest that there are commonalities in metaphor use across different people with the same psychological condition (Littlemore, 2019), which can thus be assumed to be largely driven by salient aspects of the experience itself. In a review covering studies on depression, schizophrenia and autism finds that they provide evidence that “a person’s state of mind can radically alter the way in which they experience the world though embodied metaphor” and that the investigation of these can provide valuable and clinically useful insights. Another difference in emphasis between traditional CMT and this approach is that it replaces an understanding of linguistic metaphor as instantiation of cognitive metaphor with a theory in which there is interaction between language use and cognition (Cameron et al., 2009).

**Figure 11**

*Factors Influencing an Instance of Use of a Metaphorical Expression. Based on Cameron et al.'s (2009) Discourse Dynamic Theory of Metaphor.*




## Methodology: Metaphor-led Discourse Analysis

The data of a heterophenomenological approach is linguistic data: the utterances of the person who is reporting their subjective experience (Dennett, 2003). Dennett suggests that the interpretation of these utterances is best understood by analogy with literary analysis, and in justifying this he draws attention to the metaphoricity of the way in which we describe consciousness of mental imagery as 'seeing' (Dennett, 2007). He does not propose rigorous methods for this analysis. However, there are methodologies within linguistics for the analysis of discourse data which do allow for a more rigorous and systematic approach to be taken. Metaphor-led discourse analysis is particularly well suited to the analysis of subjective descriptions of abstract, private, mental experiences. It has its theoretical basis in a discourse dynamic understanding of metaphor, which is an evolution of conceptual metaphor theory, preserving many of its key insights, while incorporating a more empirical

977 understanding of metaphor. The current work uses this methodology, drawing on a
978 discourse dynamic theory of metaphor.

979 Methodologically a discourse dynamic understanding of metaphor entails a bottom-
980 up approach to identifying and describing metaphors, which allows for unanticipated
981 metaphors to emerge. This is appropriate to the investigation of neurological conditions, in
982 which experiences may radically depart from the mainstream linguistic community, and vary
983 within and between individuals. It also has the benefit of accommodating the fact that the
984 experience being described is not static and therefore the way in which metaphors are used
985 may change with recovery or disease progression. More broadly a discourse analysis
986 approach is an appropriate method to minimise theoretical preconceptions while examining
987 the ontology of individuals' accounts of their experience with aphasia.

988 Much of the work examining metaphor use in healthcare has had an emotional or
989 social focus. The most extensive literature taking this approach has analysed the metaphors
990 used by people with cancer to describe their illness, in particular contrasting 'war'
991 metaphors with 'journey' metaphors (e.g. Semino, Demjen & Demmen, 2018). This work has
992 had a clinical impact, with recommendations made to healthcare workers: Semino et al
993 suggest that different approaches should be taken, from avoiding or using one metaphor
994 type over another to questioning the metaphors used by a patient and suggesting
995 alternatives, depending on the context. The contextual factors discussed by Semino et al.
996 largely relate to the illness itself, in particular prognosis and treatment options (i.e., there is
997 commonality across individuals in an influence of salient aspects of the experience on
998 metaphor use).

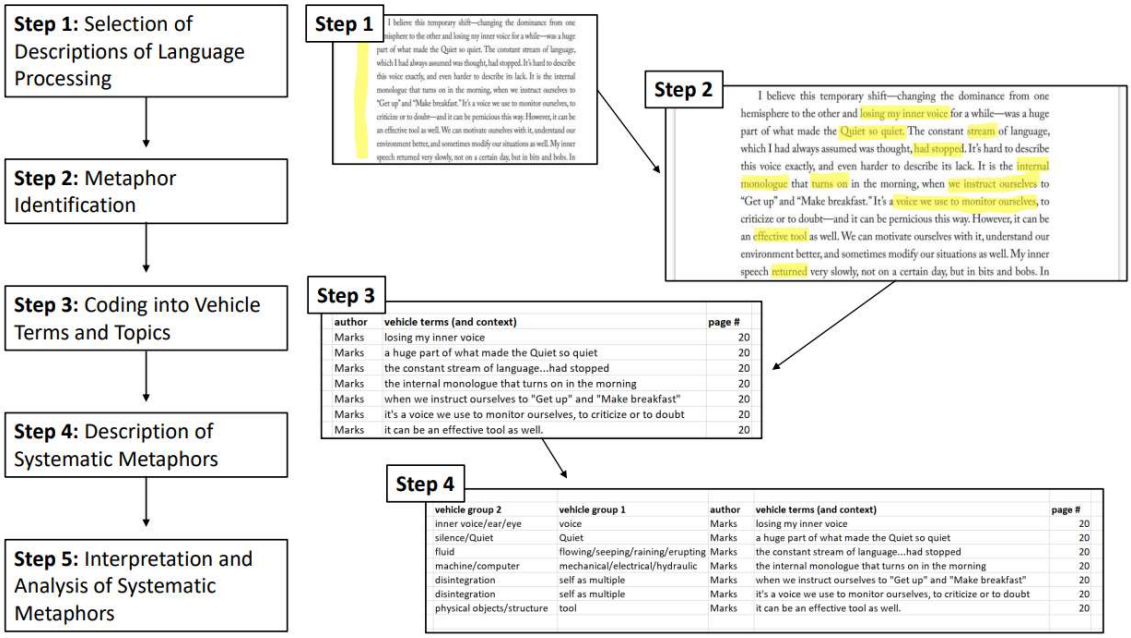
While the application of this methodology is novel within aphasiology, Plug et al. (2009) demonstrate the potential of taking a heterophenomenological and neuropsychological approach to the interpretation of metaphor-led discourse analysis of subjective descriptions, in this case transcripts of clinical interview about the experience of seizure. This study found that people with psychogenic seizures made use of different metaphors than people with epileptic seizures. Systematic analysis of the information which these patients provided about their experience thus provided valuable diagnostic information which is difficult to obtain by other methods. This study illustrates the value of a heterophenomenological approach, as well as the utility of metaphor-led discourse analysis for doing so. It shows that such people can provide a reliable description of similar phenomenological experiences of their symptoms, and that metaphor analysis can reveal key features of this experience. In keeping with a heterophenomenological approach, the results are interpreted with reference to previously established theory, and allow for the 'taking seriously' of reported experience even in conditions where insight and first-hand interpretation of symptoms may be altered.

## Methods

The analysis was carried out following Cameron et al.'s (2009) metaphor-led discourse dynamic method (see Figure 12). Here an overview is provided of the data source and the steps taken in its analysis and interpretation.

**Figure 12**

*Overview of the Steps of Metaphor-led Discourse Analysis (following Cameron et al., 2009).*




## Data Source

Search engines and library catalogues were used to find accounts written in English by a person with aphasia. A convenience sample of twelve autobiographical accounts of aphasia produced in the last fifty years were included (eleven books, one short extract). See Appendix A (in Chapter 4) for a summary of demographic information and aphasia characteristics of each author. Here a brief description is given of each author and their autobiographical account.

### *Stroke Diary II (Broussard, 2016)*

Broussard, had an ischaemic stroke at the age of around 60, as a consequence of which he experienced a fluent aphasia. He previously worked as a naval engineer and in workforce development, has written numerous books about his experience of aphasia, and about aphasia generally. He has written three autobiographical volumes, the second of which is

used in this analysis. In all of these accounts he describes how he reasoned about his impairment and language processing during his recovery and afterwards. He has emphasized the importance of metaphor to recovery in the book included in this analysis and in his other work (see in particular Broussard, 2022).

***My Stroke of Luck (Douglas, 2002)***

Kirk Douglas, the actor, had a stroke at the age of 79. He experienced a non-fluent aphasia, apraxia, and dysarthria. His account focuses primarily on the emotional and social impact of his language and speech impairments.

***Until Further Notice I am Alive (Lubbock, 2012)***

Lubbock, an arts journalist, was diagnosed with a brain tumour in his early 50s, which led to his death two years later. During this period, he continued to write professionally, as his writing was preserved relative to other language modalities, and he also produced this autobiographical account of his increasing difficulties with language. He provides precise details both about his impairment and about the emotional impact of his illness. An unusual feature of his account is that he describes greater fluctuation in his symptoms than the authors who describe post-stroke or traumatic brain injury aphasia describe.

***Finding My Voice with Aphasia (Maloney, 2013),***

Maloney, a teacher with an interest in dyslexia and special education, had a stroke affecting her left temporal lobe in her early 50s, leading to impairment of expressive and receptive language and short-term memory. In her autobiographical account of her recovery, she describes her symptoms and reports strategies which helped her.

***A Stitch of Time (Marks, 2017)***

Marks, a doctoral student and actor, had a left middle cerebral artery haemorrhagic stroke damaging her left perisylvian area and basal ganglia, at the age of 27. She experienced impairment of expressive language and apraxia, and initially some difficulties with receptive language and self-monitoring. In her account she describes the profound emotional and cognitive impacts of her language symptoms.

***A Mind of My Own (Mills, 2004)***

Mills, a Classics professor, experienced a traumatic brain injury in a motorcycle accident at the age of 32. This led to a non-fluent aphasia, with some initial receptive language difficulties, as well as some cognitive difficulties. In her account she describes an initial lack of insight into her impairments, and the process of gaining insight and engaging in recovery.

***Without Utterance (Resch, 2012)***

Resch, a psychoanalyst and researcher, had a stroke at the age of 44. This led to expressive language problems, and some initial receptive language difficulties, with an impact of her language impairment on cognition. She describes her experience over decades of recovery, worsening symptoms, and then further recovery, primarily focusing on the emotional impact and adaptation to her symptoms.

***Crossing the Void (Schultz, 2010)***

Schultz, an outdoor activities shop owner, had an ischaemic left posterior middle cerebral artery stroke at the age of 53. This led to a fluent aphasia, with some initial receptive language difficulties. In her account she describes her language symptoms in detail, as well as her disappointing experience of Speech and Language Therapy, following which she developed her own successful strategies for recovery based on the understanding she had reached of her language impairment and preserved abilities.

***My Stroke of Insight (Taylor, 2016)***

Taylor, a neuroanatomist, had a haemorrhagic left-sided stroke affecting her parietal, temporal and frontal lobes, at the age of 37. This led to a non-fluent aphasia, with some initial receptive difficulties. The focus of her account is the profound effect which the loss of language had on her cognition, perceptions and emotional state.

***The Shadow Factory (West, 2008)***

West, a novelist, had a stroke while in hospital with an infection, at 73 years old. As a result he experienced a global aphasia. In his account he describes the process of language recovery, including his awareness of inner language and early signs of recovery while he was still only able to produce one or two perseverative words. He describes using circumlocution and writerly language as a compensatory strategy, which is apparent in the prose used in the account.

***Aphasia, my world alone (Wulf, 1973)***

Wulf, co-owner of a family business, had a stroke at the age of 57, leading to difficulties primarily with expressive language, with some initial receptive difficulties. She describes her symptoms in detail, as well as her experience of rehabilitation and the impact of aphasia on her identity and relationships.

***'Maria,' from Jumbly Words, and Rights Where Wrongs Should Be: The Experience of Aphasia from the Inside (eds. Edelman & Greenwood, 1992)***

'Maria' describes a post-stroke aphasia which led to expressive language difficulties. Multiple first-hand accounts are included in this anthology, the one attributed to 'Maria' was selected for this analysis as it described the symptoms and extended over several pages, whereas other accounts were shorter or were more focused on psychosocial aspects of the

experience of aphasia. She describes her initial symptoms and how she conceptualises recovery.

**Metaphor identification, coding and analysis**

The analysis was carried out according to a five-stage process for metaphor identification, coding, and analysis. The full dataset of metaphors can be obtained by request from the authors. Identification and coding of metaphors were carried out by the first author, a Speech and Language Therapist, and three research assistants (Speech and Language Therapy students).

***Step 1 - Familiarisation with Texts and Selection of Descriptions of Language Processing***

To create the dataset, researchers first familiarized themselves with the texts, by reading and rereading all texts before identifying relevant sections, and then identified all descriptions of the subjective experience of language processing before beginning any identification of metaphor (following Cameron & Maslen's recommendations on reducing researcher expectation and bias). For each text a minimum of two researchers independently identified relevant sections, with discussion of any points of disagreement.

***Step 2 - Metaphor Identification***

Metaphorical expressions were identified following Cameron & Maslen's (2010) modified version of the Pragglejaz Group's (2007) Metaphor Identification Procedure. Maslen's (2010) recommendations on working with large amounts of metaphor data were also followed. All selections relevant to language processing were reread, and possible metaphorical expressions identified. These expressions were then individually checked for:

1. meaning in the discourse context;
2. the existence of another, more basic meaning;

3. an incongruity or contrast between these meanings and a transfer from the basic to the contextual meaning (Cameron & Maslen, 2010).

To give an example, Taylor's description of "those little voices" (p.42) has 1) the meaning in context of inner speech (as determined in this case by the immediate context which continues "that brain chatter that customarily kept me abreast of myself in relation to the world outside of me"), 2) a more basic meaning of multiple voices (i.e. externally perceived speech), and therefore 3) there is a contrast between the meaning in context and the more basic meaning.

All expressions meeting these criteria were added to a spreadsheet. At least two researchers independently conducted the metaphor identification for each text, following training on the methodology. Metaphor identification inter-rater reliability was checked until >80% consistency was achieved. Unclear cases were discussed as a group, and decisions made were documented to maintain consistency. Discrepancies between the two versions for each text were resolved through further discussions until consensus was reached. The first author then reviewed the data produced for each text for consistency with the finalized inclusion principles.

***Step 3 – Coding into Vehicle Groups and Topics***

The words or phrases which carry the metaphorical meaning (e.g., 'those little voices') are the metaphor's 'vehicle' terms. These were coded into semantically related 'vehicle groups'. This was done following Cameron & Maslen (2010), with two levels of generality coded: 'Vehicle Group 1,' which remained as near as possible to the specific term used, and a 'Vehicle Group 2,' which brought related Vehicle Group 1 categories together into broader categories. Metaphorical expressions which could be included in more than one

category were duplicated. This coding process was carried out as a collaborative, iterative process by at least two researchers, including the first author.

***Step 4 - Description of Systematic Metaphors***

To examine language production, a subset of the data was extracted which included all descriptions of spoken or written language, and of the use of language for cognition, including the processes involved in 'inner speech.' Description of systematic metaphors for word production was carried out by the first author through repeated sorting and examination of the data, sorted by vehicle group and author, with reference to the original entire texts to establish context, patterns of use and discourse function.

***Step 5 – Interpretation***

The interpretation of systematic metaphors was carried out with reference to the literature, considering points of similarity and difference. There was no theoretical commitment to a particular model or theory in advance of interpretation. Chapters 4, 5 and 6 describe in more detail the way in which interpretation was carried out with reference to the research questions addressed.

**Ensuring Rigour**

Vehicle terms were coded before topic terms, to minimize premature interpretation (as recommended by Cameron, Low & Maslen, 2010). Regular group meetings were arranged for collaborative decision-making, and all data was cross-checked by a minimum of two researchers, including the first author. The primary researcher carried out the description of systematic metaphors of word finding and production difficulties across all texts, regularly consulting the original full accounts (Maslen, 2010). A research assistant conducted the same process on a subset of four accounts. There was consistency in the most prevalent metaphors identified (with minor variations in wording) in these separate analyses. Regular

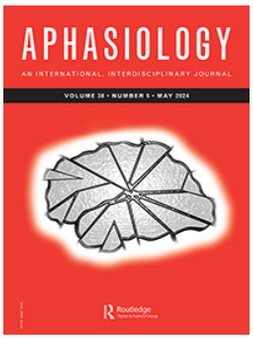
meetings were held between the primary researcher and her PhD supervisors, to discuss interpretation of the data, expectation and bias. No specific psycholinguistic model was used in interpretation in order to reduce theoretical precommitments.

**Researcher Positionality, Theoretical Influences and Motivation for this Research**

I do not have personal or familial experience of language impairment or of neurological injury. My awareness of the importance of the subjective perspective in health and social care settings was stimulated through encountering the work of self-advocacy organisations in the anti-austerity movement in 2010-2013 (namely, My Life My Choice, n.d.; and Disabled People Against Cuts, Humphry et al., 2020), through conversations with the campaigner and writer Michele Coele (Wates & Jade, 1999; Wates, 2002), and through reading autobiographies (e.g., Grandin, 1996). Subsequently, I trained as a Speech and Language Therapist, and worked on a neurorehabilitation ward and privately with clients with aphasia.

The initial plan for my PhD research was a quantitative experimental psycholinguistic study of word production, driven by a theoretical interest in models of word production. The Covid-19 pandemic necessitated the design of a new plan of research which could be carried out without access to participants. A previous degree in (analytic) philosophy and an interest in metaphor influenced the conceptual tools available to me in considering how to approach and interpret this source of data. Prior to carrying out the research described in this thesis I was particularly interested in debates around the potential role of self-monitoring through receptive language networks in language production but was agnostic about which model of word production best captures the data.

# Chapter 4. Subjective Experience of Word Production Difficulties in Aphasia: A Metaphor Analysis of Autobiographical Accounts



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# Subjective Experience of Word Production Difficulties in Aphasia: a Metaphor Analysis of Autobiographical Accounts

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**ABSTRACT**

**Background and aims:** The subjective experience of neurological symptoms provides useful information for assessment, intervention and care. However, research in the subjective experience of aphasia is limited. Word production difficulties are universal to aphasia, and interdisciplinary research has produced sophisticated models of the multiple stages and processes involved. Critically, this word-production research does not incorporate the subjective experience of symptoms. We carried out a metaphor-led discourse analysis on autobiographical accounts written by people with aphasia, to determine whether subjective descriptions of word finding difficulties are consistent with the stages and processes of psycholinguistic models.

**Method:** Metaphor-led discourse analysis was used to identify, code and interpret metaphorical expressions describing word production difficulties in 12 English-language autobiographical accounts written by people with aphasia. These expressions were then analysed to determine the systematic metaphors (i.e., the related concepts which are used consistently to describe a particular topic). Two distinct types of systematic metaphor emerged in the analysis: conventional systematic metaphors frequently recurring throughout all or most of the accounts; novel systematic metaphors used in one or two extended passages in an overlapping subset of the accounts.

**Results and discussion:** 4020 metaphorical expressions described word production, predominantly using conventional metaphors about communication and cognition. The conventional metaphor WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER was the most prevalent, with elaborations and variations allowing mapping of different symptoms. Other conventional metaphors included: WORD PRODUCTION AS A JOURNEY/HUNTING/HERDING THROUGH A LANDSCAPE, allowing description of effortful or partial retrieval, neuroplastic recovery, and internal strategies; APHASIA AS BODILY IMPAIRMENT, which described various symptoms in terms of different body parts, including self-monitoring difficulties; and APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF and SELF AS MACHINE/COMPUTER to describe a disrupted sense of agency and attention. Novel systematic metaphors were used to describe certain symptoms: APHASIA AS SILENCE and APHASIA AS SPIRITUAL EXPERIENCE were used to describe a lack of 'inner speech',

**KEYWORDS**
metaphor analysis; naming; aphasia; systematic metaphors; autobiography

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and APHASIA AS A DISMEMBERED TREE to describe problems making semantic associations.
**Conclusions and implications:** This research demonstrates the many consistencies of subjective descriptions of word production difficulties in aphasia with theoretical models, but also shows that some subjectively salient symptoms, in particular attentional and self-monitoring difficulties, and a lack of inner speech, are not captured by all theoretical models. Careful attention to the way that people with aphasia describe their symptoms can provide a valuable source of information to be integrated with objective measures.

## Background

Clinically, the subjective experience of neurological symptoms provides useful information for assessment, intervention and care, in some cases providing the main source of information for diagnosis. This can include descriptions of common experiences such as pain or fatigue, and of more unusual symptoms such as perceptual distortions. Subjective symptoms can differentiate behaviourally similar disorders, for example, self-reported mood can distinguish between pseudobulbar affect and depression as the cause of crying episodes following brain injury (Engelman et al., 2014). Emerging research suggests that subjective experience sheds light on the neuropsychological profile of complex and heterogenous syndromes such as dementia (Zwijsen et al., 2016). In aphasiology there is limited research on subjective experience, likely primarily due to the difficulty of describing symptoms when communication is impaired. This study demonstrates that despite the difficulties, there is valuable diagnostic information to be gained from subjective descriptions of aphasia.

The potential contribution of subjective experience to understanding the underlying dynamics of word production can be illustrated with the example of a semantic fluency task. After such a task (e.g., listing animals) a client might say: "I can hear it in my head, but I can't say it," which suggests successful phonological activation but difficulty with articulation; or "another word gets in the way," perhaps suggesting a selection difficulty; or "the word keeps slipping away" suggesting working memory problems. These subjective reports appear to be indicative of difficulties at particular stages (e.g., semantic, phonological, articulatory) and also of how processing is affected (e.g., activation, selection, retention). This information is not available in the behavioural measures of this task such as the number of correct words. Thus there are missed opportunities when such insights into language impairment are not routinely captured.

This research focuses on word production difficulties, as these are a universal feature of aphasia, regardless of subtype or severity. Extensive psycholinguistic and neuropsychological research has resulted in sophisticated models of word production, which explain the different presentations of word production difficulties in terms of impairment to semantic, phonological or articulatory stages. Models differ on the degree of modularity of these stages, and on how integral self-monitoring through receptive language networks, and cognitive processes such as attention, are to word production (e.g., compare Nozari et al., 2011 and Roelofs, 2014). Critically, while discussions about the relative merits

of such models draw on a range of methodologies, they omit much of the information available in subjective experiences of word finding difficulties. This is therefore an under-explored source of valuable information on hard-to-observe underlying processes.

### *Subjective experience of aphasic symptoms*

The subjective experience of aphasia, while currently often neglected, was foundational in the establishment of scientific aphasiology. Lordat's (1843) first-hand account of transient word production difficulties was much discussed by early theorists such as Wernicke (1874) (see Bay, 1969). In the intervening two centuries, autobiographical accounts of aphasia have increased in number, length, the severity of symptoms described, and demographic diversity, due to better medical treatment and widespread access to education and the means to write and publish. However, as aphasiology has become more specialised, the insights available in first-hand accounts have become detached from theoretical research.

Luria is a notable exception, as he routinely included patients' descriptions of symptoms in *Traumatic Aphasia* (e.g., "Everything immediately flew away" . . . "the words fell to pieces," p128, 1970), and edited and contextualised his patient Zasetsky's autobiographical journal in *The Man with a Shattered World* (1972). In this work he combined subjective descriptions with behavioural testing to prise apart the stages of processing, for example "We have already pointed out that he could not recall a word immediately but had to search actively for it, often finding that other words occurred to him instead . . . How, then, was he to select the right word when his memory was cluttered with words . . . ?" (p107, 1972). Yet this close attention to the subjective experience has not had the same influence as the objective aspects of Luria's work which it informed (Sacks, 2014).

There have been sporadic attempts to integrate the subjective perspective with fine-grained pyscholinguistic theory. Rolnick and Hoops (1969) suggest that subjective symptoms can provide "insight into the underlying dynamics of the disorder." Their analysis of interview data from six individuals with aphasia found descriptions of processes such as self-monitoring, the effect of speaking rate on word finding, and difficulty with certain syntactic categories. More recently, Fama et al. (2022) carried out a thematic analysis of interview data from fifty-three people with aphasia. Much of the analysis concerns the impact-level factors, but under the theme 'mechanism' there is some exploration of how word production were described at the level of impairment (World Health Organisation, 2001). For example, subjective descriptions of problems with word 'memory' as likely referring to a 'failure of lexical access/retrieval.' While this work shows the greater rigor made possible by modern qualitative methods and analysis of a larger amount of data, it does not analyse descriptions of impairment systematically and at the same level of detail as Rolnick and Hoops (1969).

Three other recent studies interpret subjective reports in terms of specific fine-grained psycholinguistic theory (Ardila & Rubio-Bruno, 2018; Morin, 2009; Skipper, 2022). These studies do not attempt methodological rigour, but select short extracts of subjective accounts which provide illustration or anecdotal evidence for the authors' theoretical interests. Taking a different approach there are studies which demonstrate that subjectively reported symptoms in aphasia can be confirmed to correlate with objective measures, such as the occurrence of tip-of-the-tongue states (Goodglass et al., 1976), or intact

inner speech (Fama & Turkeltaub, 2020). These studies show that subjective data can be integrated in a rigorous way, but with the limitation that participants are asked whether or not they agree with a statement which is predetermined by the researchers. Such an approach loses the fine-grained detail and the ability to capture novel insights which are available with a bottom-up approach.

Through the novel application of metaphor-led discourse analysis to subjective descriptions of impairment in aphasia, this study brings together the systematic and bottom-up application of formal qualitative methods with the granularity of detail found in psycholinguistic models. This method is ideally suited to the exploration of a large quantity of autobiographical writing from multiple authors, as it can accommodate the heterogeneity of experience represented in these accounts while still allowing meaningful comparisons to be made. Taking such an empirical linguistic approach lessens the impact of researchers' preconceptions and interests on the analysis (Cameron & Maslen, 2010).

## *Metaphor-led discourse analysis for exploring the subjective experience of aphasia*

Metaphor-led discourse analysis is a rigorous approach to exploring subjective experience through qualitative analysis of discourse data such as interviews or written accounts (Cameron & Maslen, 2010). In healthcare, the most influential application of this method has been Semino's work on people's experience of cancer and its treatment (e.g., Semino et al., 2015). Emerging work demonstrates that this method can be applied not only to physical illnesses or to questions of impact, but to impairment-level exploration of symptoms of neurological and psychiatric conditions. To give a noteworthy example, metaphor analysis of clinical interview transcripts can differentiate epileptic from non-epileptic seizures, highlighting the potential for this approach to reveal the underlying mental processes behind similar observable behaviours by systematically capturing information in the subtleties of description (Plug et al., 2009). This information may be of a type which an experienced clinician is sensitive to, but which is neither transparent to introspection nor easily formalised, and therefore not readily available to report and teach. A review of various psychiatric conditions such as depression and schizophrenia established that complex and heterogenous alterations of cognitive and affective processes can be effectively explored through metaphor-led discourse analysis (Littlemore, 2019). These studies provide a firm grounding to extend the approach, to explore whether the details of the cognitive and linguistic processes affected in word production difficulties in aphasia are reflected in the metaphors used to describe the experience.

The use of metaphors to explore experience is based on an understanding of metaphors as more than a matter of rhetoric. According to Conceptual Metaphor Theory, metaphors play a central role in shaping our understanding of abstract and complex 'target domains' through the mapping of more familiar and concrete 'source domains' (Lakoff & Johnson, 1980). Through metaphorical mappings, we relate some aspects of the source domain to relevant or salient aspects of the target domain, giving us a structure for understanding it. Thus by analyzing the metaphorical language used to describe cognitive or linguistic processes, we can gain insight into the underlying patterns of thought and experience. To give an example which has been discussed in the metaphor literature,

UNDERSTANDING AS SEEING[1] maps the source domain of vision onto the target domain of cognition, as in "I *see* what you mean." Close analysis of the use of this metaphor in discourse data shows that it is used specifically to describe the process of gaining an understanding of another person's perspective (Deignan & Cameron, 2009), demonstrating how empirical methods can reveal nuances unavailable to intuition.

## The Current Study

Written autobiographies provide a unique source of discourse data on the subjective experience of symptoms, to which a metaphor analysis can be applied. In this study 12 autobiographies were selected, written by authors with a wide range of aphasia types and severity (from mild and transient with full recovery, to global aphasia with significant persisting difficulties), different aetiologies (ten stroke, one traumatic brain injury, one cancer), male (four) and female (eight), ranging in age from 27 to 79, and spanning a range of styles and genre, from factual and reflective self-published journals such as Broussard's (2016) *Stroke Diary*, to the creative memoir of a novelist, *The Shadow Factory*, (West, 2008), and Taylor's (2009) professionally published popular science best seller *My Stroke of Insight*.

Long form written accounts have advantages over interview data as the author does not need to make pragmatic compromises in their word choice because of the time pressures of an interview, nor is their choice of language as influenced by the clinical or research environment. As the method does not place undue weight on any single metaphorical expression, but looks for systematic application of similar metaphors, any distortion of the authors' words due to editorial processes should not affect the analysis. Metaphor analysis has been carried out on published first-hand accounts in other areas; Vidali (2010) includes autobiography, poetry, and academic writings produced by authors with disabilities in her discussion of embodied metaphor. Published works are considered as directly attributable to their authors, despite the ways in which the world of publishing deviates from that of carefully controlled research. The unknown contribution of support with editing and writing is offset by the inclusion of a range of types of texts produced and published in a wide variety of ways, including the inclusion in some of the accounts of extracts of unedited contemporaneous journal entries. The selection bias that may arise from a sample of individuals who are able to write and publish their own accounts is minimized through careful and constrained interpretation of the analysis. All of these accounts contain the detailed reports of years of intensive work on language recovery by intelligent and highly motivated people, some of whom have relevant prior expertise, such as Jill Bolte Taylor's background in neuroscience or Carol Maloney's experience working in education and dyslexia, or who apply expertise and analytical tools from other disciplines, such as Thomas Broussard's engineering-informed development of tools and systems for collecting information about his impairment and careful logical analysis of the information thus gained. Each account offers a depth of reflection on a particular case of aphasia which is available from no other source.

All metaphors used to describe word production in these accounts were identified following Cameron and Maslen (2010), see methods. The use of metaphorical language in describing aphasia symptoms may be in the form of a single word (such as "evaporated") or a longer phrase or sentence (such as "the fragments of my broken

speech scattered around me"). These linguistic units are termed the metaphor 'vehicles.' The vehicle terms were coded in an iterative procedure into 'vehicle groups' based on the semantic meaning of the source domain (e.g., 'evaporation,' or 'disintegration'). Subsequently, through repeated examination of the sorted data, with consideration of the meaning in context of the coded expressions, systematic metaphors were identified, for example, WORD PRODUCTION DIFFICULTIES AS A LOSS OF SOLIDITY.

Through exploration of how these systematic metaphors are used in the autobiographical accounts, the commonalities and differences of the authors' symptoms can be explored, and insight gained into the range of experiences described (Littlemore, 2019). Consideration of the way in which these metaphors are used, with reference to the contextual information provided about the authors' symptoms, allows for suggestions to be made about whether different theoretical descriptions of impaired processing could account for the symptoms described.

Models of word production agree on the existence of different stages of processing, with broad agreement that distinctions can be made between semantic, phonological and motor levels. These levels may be differentially impaired. Models differ in various dimensions: the degree to which these levels are sequential and encapsulated modules or to which activation occurs between levels before each has selected a representation; whether self-monitoring is primarily within the domain of receptive language networks or part of motor planning and prediction; the role of cognitive processes such as attention in word production (e.g., compare Nozari et al., 2011 vs. Roelofs, 2014). The current study offers a way of examining these differences through the descriptions of subjective experience of people with aphasia. To give an example, the 'evaporation' of a word appears to describe the successful retrieval of a phonological word form followed by difficulty retaining it in working memory, whereas the 'melting' or 'disintegration' of a word is used to describe successful activation followed by difficulty with motor planning or articulation (these metaphors are explored and illustrated in Results). This example shows the value of analysing a large amount of data in identifying the way that different symptoms may be conceptualised using different mappings available within a particular systematic metaphor. This systematicity means that this work can form the basis for future mixed methods work.

Research in metaphor has identified numerous conventional metaphors, which are those that a linguistic community uses to conceptualise a particular target domain. The conventionality or novelty of the systematic metaphors found in this analysis was considered, that is, whether the metaphors used conformed to the usual ways in which we conceptualise language use. This allows us to identify the aspects of the experiences described which are subjectively more unusual. These unusual experiences are perhaps harder for clinicians, researchers and family members to understand empathically. Attention to the metaphors used has the potential to facilitate understanding of such symptoms and to improve clinical rapport.

The aims of this study are 1) to explore which metaphors are used to describe the subjective experiences of word finding difficulties in written accounts by people with aphasia, 2) to consider whether these descriptions reflect the details of the cognitive and linguistic impairment as described by psycholinguistic theory, and 3) to consider whether particular processes or symptoms which are described are not accounted for in some models or theories.

## Method

### Data Source

Search engines and library catalogues were used to find accounts written in English by a person with aphasia. Twelve autobiographical accounts of aphasia were included (eleven books, one short extract), these were: *Stroke Diary* (Broussard, 2016), *My Stroke of Luck* (Douglas, 2002), *Until Further Notice I am Alive* (Lubbock, 2012), *Finding My Voice with Aphasia* (Maloney, 2013), *A Stitch in Time* (Marks, 2017), *A Mind of My Own* (Mills, 2004), *Without Utterance* (Resch, 2012), *Crossing the Void* (Schultz, 2010), *My Stroke of Insight* (Taylor, 2009), *The Shadow Factory* (West, 2008), *Aphasia, my world alone* (Wulf, 1973), and a short extract by 'Maria,' from *Jumbly Words, and Rights Where Wrongs Should Be: The Experience of Aphasia from the Inside* (eds. Edelman & Greenwood, 1992). See Appendix A for a summary of background information and aphasia characteristics provided in the accounts analysed.

### Metaphor identification, coding and analysis

A five-stage process of metaphor identification, coding and analysis was used, following Cameron et al.'s (2009) metaphor-led discourse dynamic method (see Figure 1). Metaphor identification and coding were carried out by the first author, a Speech and Language Therapist with clinical experience in aphasia, and three research assistants (Speech and Language Therapy students), each of whom worked with the same 3-5 books for each step of the analysis. Description and interpretation of systematic metaphors was carried out by the first author. We provide details in Appendix B of the measures undertaken to increase rigour, reduce bias and enhance replicability at each of the five steps of analysis. Researchers wishing to explore to the dataset are invited to contact the corresponding author for access.

### Step 1. Familiarisation with Texts and Selection of Descriptions of Language Processing

First, all researchers familiarised themselves with the texts and identified all descriptions of the subjective experience of word-production. For each text a minimum of two researchers independently identified relevant sections, with discussion of any points of disagreement. An inclusive approach was taken to difficult cases, for example with the

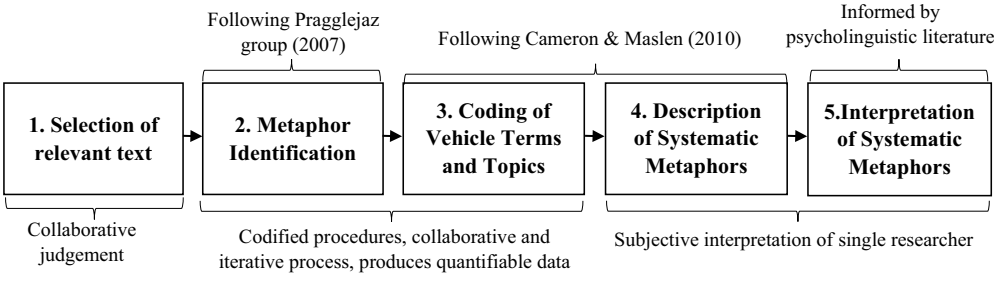
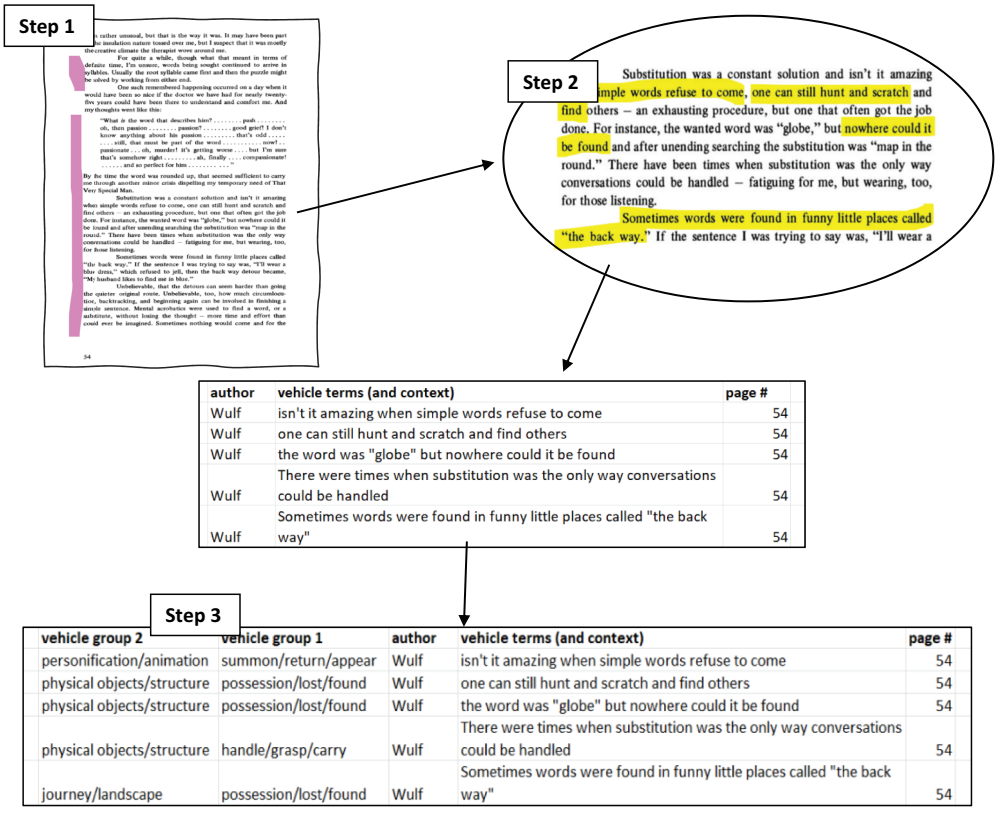



Figure 1. Five stage process of metaphor identification, coding and interpretation




| author | vehicle terms (and context) | page # |
|---|---|---|
| Wulf | isn't it amazing when simple words refuse to come | 54 |
| Wulf | one can still hunt and scratch and find others | 54 |
| Wulf | the word was "globe" but nowhere could it be found | 54 |
| Wulf | There were times when substitution was the only way conversations could be handled | 54 |
| Wulf | Sometimes words were found in funny little places called "the back way" | 54 |

| vehicle group 2 | vehicle group 1 | author | vehicle terms (and context) | page # |
|---|---|---|---|---|
| personification/animation | summon/return/appear | Wulf | isn't it amazing when simple words refuse to come | 54 |
| physical objects/structure | possession/lost/found | Wulf | one can still hunt and scratch and find others | 54 |
| physical objects/structure | possession/lost/found | Wulf | the word was "globe" but nowhere could it be found | 54 |
| physical objects/structure | handle/grasp/carry | Wulf | There were times when substitution was the only way conversations could be handled | 54 |
| journey/landscape | possession/lost/found | Wulf | Sometimes words were found in funny little places called "the back way" | 54 |

**Figure 2.** Illustration of Metaphor Identification and Coding into Vehicle Groups 1 & 2 using an Extract from Wulf (1973)

inclusion of descriptions of speech, writing and inner speech, and descriptions of the general state of having a language impairment, as well as descriptions of online processing (see Appendix B).

### *Step 2 - Metaphor Identification*

Identification of metaphorical expressions was carried out following Cameron and Maslen's (2010) modified version of the Pragglejaz Group's (2007) Metaphor Identification Procedure. The selected passages were reread, and possible metaphorical expressions were identified. These were checked for:

(1) meaning in the discourse context;
(2) the existence of another, more basic meaning;
(3) an incongruity or contrast between these meanings and a transfer from the basic to the contextual meaning (Cameron & Maslen, 2010).

This can be illustrated using the first highlighted expression in Figure 2. The description of words which 'refuse to come' has 1) the meaning in context of attempted word-finding, 2) a more basic meaning of a person or other agent being

unwilling to physically move, therefore there is 3) a contrast in meaning between the mental processes of word-finding and working memory and the actions and attitudes of an agent. There is a transfer in meaning from the latter to the former through conceptualisation of the words as animate individuals, the mind as a place, and so on. All expressions which met these criteria were entered into a spreadsheet.

The identification of a more basic meaning inevitably involves a judgment by the researcher. The intuitions of the native English-speaking researchers, consultation of dictionaries and etymologies, and comparison of frequency of different usages in Internet search engine results, were used to increase the reliability of this judgment. This procedure was performed independently by at least two researchers for each text, with group discussion of unclear cases and documentation of the principles on which these cases were decided to ensure consistency. The two versions were then combined with further discussion of any points of disagreement. The first author checked each text and its data against the final document of agreed inclusion principles.

### *Step 3 - Coding of Vehicle Terms and Topics*

The words used metaphorically (e.g., 'rounding up') are referred to as the 'vehicle' terms. These terms were coded into semantically related 'vehicle groups.' This was done at two levels of generality following Cameron and Maslen (2010): 'Vehicle Group 1' remaining as close to the specific meaning of the term as possible, and 'Vehicle Group 2' creating broader overarching semantic categories. If a metaphorical expression could be included in two categories, it was duplicated and coded in each. Figure 2 shows an extract of the coded data. This process was carried out iteratively and collaboratively by at least two researchers, including the first author, with consensus decision-making on points of disagreement. Following the coding of the data into Vehicle Groups, the data was also coded by topic, according to predetermined broad categories of language modality or level: spoken language, thinking/cognition/state of mind, reading, writing/typing, understanding spoken language, role/communicative ability, self-monitoring, non-verbal communication, and discourse/dialogue.

### *Step 4 - Description of Systematic Metaphors*

A subset of the data was extracted for this analysis which addressed word production (this was not restricted by topic codes, as items coded as topics other than spoken language were relevant, for example, writing/typing and discourse/dialogue). The description of systematic metaphors was carried out by the first author through repeated examination of this narrower dataset, sorted by vehicle group, topic and author, and through reference to context, pattern of use and discourse function in the entire texts and in the entire dataset (for example to examine similarities with the descriptions of receptive language). Figure 3 shows multiple vehicle terms which were coded as the same Vehicle Group 2, of 'personification/animation.' As can be seen from these examples, there is not a straightforward translation of vehicle group codes into systematic metaphors, as different target domains (mental processes, body parts, linguistic units) are mapped using the same source domain (personification).

| vehicle group 2 | vehicle group 1 | author | vehicle terms (and context) | page # |
|---|---|---|---|---|
| personification/animation | controller/guard | Wulf | The judge and jury in my head decided their prisoner ought to attempt to recite the alphabet | 56 |
| personification/animation | animate/movement | Wulf | for the bit of information the salesperson wanted flew out of mind | 57 |
| personification/animation | animate/movement | Wulf | There are so many ideas, all hurrying to be said | 58 |
| personification/animation | having thoughts/feelings | Wulf | Even thoughts get impatient | 58 |
| personification/animation | having thoughts/feelings | Wulf | when the brain balks | 58 |
| personification/animation | hunting/fugitive | Wulf | When words escape me, | 61 |
| personification/animation | controller/guard | Wulf | the guard attending to that area seemed to know when something was amiss and notified me | 62 |

**Figure 3.** Examples of Data Sorted (by Vehicle Group 2, Author, and order of occurrence) for description of Systematic Metaphors

### *Step 5 - Interpretation of Systematic Metaphors*

The interpretation of systematic metaphors in the light of psycholinguistic theory was carried out by the first author. These judgements are based on clinical and theoretical knowledge, and on the partial objective information provided in the accounts. In some instances the process was straightforward, where the authors themselves explicitly mentioned the symptom described, for example with more than one author linking descriptions of APHASIA AS SILENCE to "a lack of inner speech." In cases where the connection is more speculative, multiple examples are provided to support these interpretations. The application of the systematic approach of metaphor-led discourse analysis to a heterogenous range of accounts means that the results produced in this way can form the basis of hypotheses to be tested in future work.

## Results and Discussion

The research aims to systematically analyze written accounts by people with aphasia to understand their subjective experiences of word production difficulty through metaphor-led discourse analysis, to compare these subjective accounts to existing psycholinguistic models, and to identify symptoms not currently included in these models. To achieve this all descriptions of language processing or impairment were excerpted for analysis, which was carried out through the identification of metaphor vehicle terms. These vehicle terms were coded into vehicle groups, first at a fine-grained level of coding which remained as close as possible to the text, ('Vehicle Group 1'); and then at a more general level to allow for a broader understanding of the systematic use of related metaphors throughout and across the texts ('Vehicle Group 2'). Both of these levels of coding were used to sort the data for repeated examination in the description of systematic metaphors. The coded Vehicle Group 2 categories are reported here to give a descriptive quantitative overview of the data before the qualitative exploration of systematic metaphors. Two distinct types of systematic metaphor emerged in the analysis, with related conventional systematic metaphors frequently recurring throughout all or most of the accounts, and some more

novel systematic metaphors used in one or two extended passages in an overlapping subset of the accounts.

### *Quantitative Overview*

Of 8148 total vehicle terms relating to language processing, 4080 metaphorical expressions addressed word production. There were 34 Vehicle Group 2 categories, with PHYSICAL OBJECTS/STRUCTURE predominating. Figure 4 shows the distribution of the 22 most frequent Vehicle Group 2 categories, including all of those discussed in this paper. Table 1 shows a breakdown by author of the most frequent twelve groups, which each contained over 100 instances across texts, and together accounted for 78% of expressions. There was consistency across the texts in the distribution of the most frequent vehicle groups, with the exception of Douglas (2002) who used a low absolute number of metaphorical expressions.

### *Qualitative Analysis – Systematic Metaphors*

To explore how people with aphasia conceptualise and reason about their word production difficulties, eight systematic metaphors used to describe word production and its impairment are described. This was done on the basis of repeated examination of the data, sorted in different combinations by Vehicle Group 1, Vehicle Group 2 and author, with frequent reference to the context of the vehicle terms in the books. Five conventional metaphors were used across all or most accounts. The conventional metaphor of WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER predominated, with elaborations or

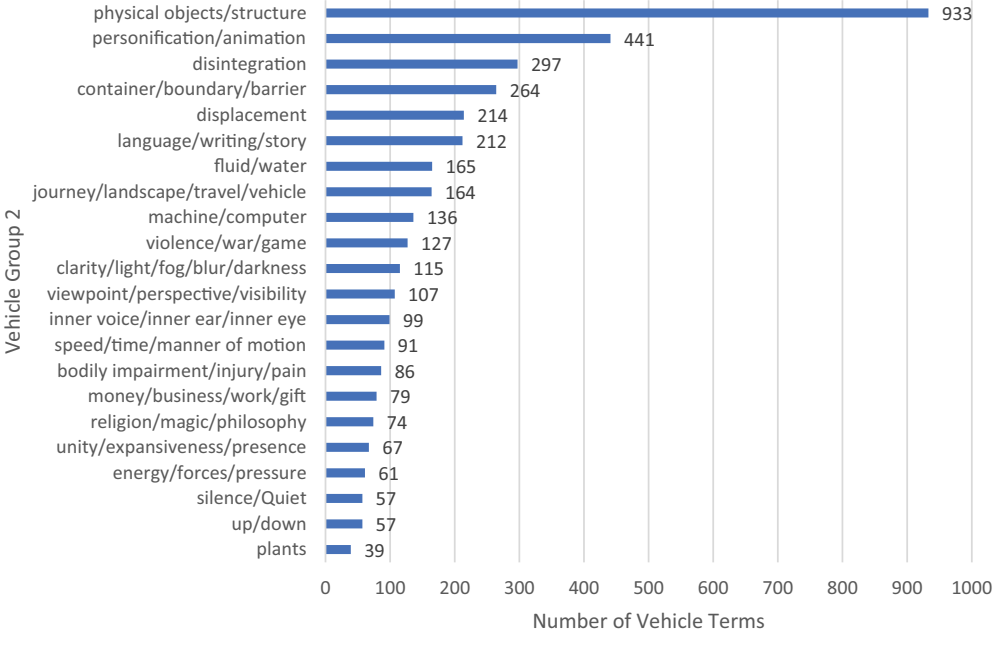



**Figure 4.** Total count of the twenty-two most frequent Vehicle Group 2 Codes

**Table 1.** Twelve most frequent Vehicle Group 2 Codes, that is, the broader semantically related groupings of vehicle terms which allow for comparison across accounts.

| Vehicle Group 2 | Broussard | Douglas | Lubbock | Maloney | Maria | Marks | Mills | Resch | Schultz | Taylor | West | Wulf | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHYSICAL OBJECTS/STRUCTURES<br>"the message I wanted to *get out*" (Marks, p. 340) | 126 | 2 | 43 | 19 | 8 | 77 | 107 | 82 | 227 | 83 | 86 | 73 | **903** |
| PERSONIFICATION/ANIMATION<br>"I've been *hunting* the word capillary" (Wulf, p. 86) | 14 | 0 | 9 | 3 | 5 | 21 | 16 | 88 | 78 | 95 | 54 | 58 | **441** |
| DISINTEGRATION/FRAGMENTATION<br>"a *"third person" talking to a "first person"*" (Broussard, p. 57) | 25 | 1 | 3 | 5 | 0 | 12 | 32 | 80 | 16 | 80 | 26 | 17 | **297** |
| CONTAINER/BARRIER<br>"that word . . . would *slide into a more accessible area* for future use" (Maria) | 23 | 0 | 5 | 4 | 2 | 10 | 30 | 74 | 1 | 73 | 17 | 25 | **294** |
| DISPLACEMENT<br>"Words . . . belong to *another world*" (Mills, p. 361) | 0 | 0 | 2 | 6 | 0 | 16 | 46 | 80 | 5 | 41 | 15 | 3 | **214** |
| FOREIGN/ALIEN LANGUAGE; CREATIVE WRITING<br>"I am learning English as a *second language*" (Schultz, p. 157) | 12 | 0 | 10 | 3 | 0 | 11 | 11 | 87 | 15 | 23 | 35 | 5 | **212** |
| FLUID/WATER<br>"*showers* of gibberish" (West, p. 177) | 11 | 0 | 1 | 2 | 1 | 18 | 5 | 36 | 10 | 43 | 11 | 27 | **165** |
| JOURNEY/LANDSCAPE<br>"words were *found in funny little places called 'the back way'*" (Wulf, p. 54) | 26 | 0 | 1 | 2 | 1 | 17 | 8 | 16 | 13 | 17 | 24 | 39 | **164** |
| MACHINE/COMPUTER<br>"my mind and speech had been *short-circuited*" (Maloney, p. 46) | 10 | 0 | 12 | 7 | 0 | 13 | 8 | 10 | 17 | 40 | 7 | 12 | **136** |
| VIOLENCE/COMPETITION<br>"*my outright war* with the other consonants and vowels" (West, p. 165) | 5 | 1 | 2 | 0 | 0 | 8 | 9 | 36 | 18 | 10 | 16 | 22 | **127** |
| CLARITY/DARKNESS<br>"Cannot find the words *through the fog*" (Schultz, p. 8) | 7 | 0 | 9 | 2 | 1 | 8 | 10 | 14 | 19 | 19 | 14 | 12 | **115** |
| VIEWPOINT/VISIBILITY<br>"I have difficulty obtaining a general *overview* of my mental field" (Lubbock, p. 33) | 11 | 0 | 4 | 0 | 0 | 8 | 25 | 31 | 6 | 12 | 5 | 5 | **107** |

variations of this metaphor used to emphasise particular aspects of experience (e.g., WORDS AS LOST/STOLEN POSSESSIONS). Other conventional metaphors for cognition (Lakoff, 1994) used across all or most accounts were WORD PRODUCTION AS A JOURNEY/HUNT, APHASIA AS BODILY IMPAIRMENT, APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF and SELF AS MACHINE/COMPUTER. These conventional metaphors were used to describe symptoms and to make fine-grained distinctions between different levels of representation and types of disrupted processing. Three novel metaphors used in an overlapping subset of the accounts to describe a pervasive qualitatively different experience arising from certain specific symptoms: APHASIA AS SILENCE, APHASIA AS A SPIRITUAL EXPERIENCE and APHASIA AS A DISMEMBERED TREE.

### *Conventional Systematic Metaphors*

The majority of vehicle terms made use of conventional metaphors, which were used recurringly throughout all of the texts, with the 'conduit metaphor' COMMUNICATION AS PHYSICAL TRANSFER (Reddy, 1979) making up around half of all instances. To describe the nuances of word production difficulties these conventional metaphors were adapted in various ways: made more specific, elaborated in unusual ways, and idioms were made more vivid and explicitly metaphorical. Here the four most frequent metaphors which occurred in the book are described (including several different variations of the first of these).

***WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER.*** Unsurprisingly the conventional representation of COMMUNICATION AS PHYSICAL TRANSFER predominated, primarily as WORD PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER and WORD PRODUCTION AS MOVING OBJECTS OUT OF THE BODY. Details of the impairment could be mapped through the specification of particular properties of WORDS AS OBJECTS, and MIND AS CONTAINER. Numerous variations of this metaphor occurred, which are explored in detail below. This metaphor and its close variants are used by most authors to describe the initial symptoms or the acute experience of aphasia. Some authors, such as Schultz, retain this metaphor throughout their accounts. However other authors, like Broussard, explicitly reject it in favour of a different metaphor which better maps the nuances of their symptoms; yet others, like Taylor, make gradual increasing use of alternative metaphors throughout their description of recovery.

***WORDS AS LOST/STOLEN POSSESSIONS and MIND AS EMPTY CONTAINER.*** These related metaphors were primarily used to describe the early experience of word production difficulties in acute aphasia, and in the context of describing the severity and strangeness of the experience to others, drawing an explicit contrast with more ordinary experiences of language difficulty. While these are both used idiomatically in English to describe transient linguistic or cognitive difficulties, for example, "robbed of speech," "my mind is a sieve," several accounts used more emphatic descriptions of complete loss and emptiness, using words such as "void," "chasm" and "abyss."

***MIND AS CLOSED/LOCKED CONTAINER.*** An alternative way to describe the overall experience, or the severity of symptoms, through metaphors of objects and containers was through representing the container as closed or locked, that is as a difficulty with *access*. Taylor and Resch made ongoing use of this metaphor, describing changes in recovery using metaphors of specific containers, 'filing cabinets' and a 'black box' respectively (see Table 2). Through these metaphors Taylor describes both online word

**Table 2.** Variations of the conventional metaphor WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER used across all or most accounts to describe the initial or overall experience of word production difficulties, or to emphasize their severity or strangeness.

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **WORDS AS LOST/STOLEN POSSESSIONS** | | |
| I had *lost* my academic terminology | Taylor | 126 |
| I became aware there were words *in* my brain that weren't *lost* | Broussard | 27 |
| if I don't get tired and exhausted and *run out of words* | Mills | 72 |
| But they don't *lose* words like I do! | Resch | 33 |
| a young woman who had loved words and then her words had been *taken away* from her | Marks | 191 |
| I had a stroke. - It *took* my words | Schultz | 100 |
| I *move* fewer and fewer words *around* | Lubbock | 143 |
| **MIND/PART OF MIND AS EMPTY CONTAINER** | | |
| where there had once been *vacancy* there was now clutter | Marks | 102 |
| the name of the firm "had *fallen out* of my mind" | Wulf | 126 |
| the journey I took into the *formless abyss* of a silent mind | Taylor | 1 |
| then it was because that part of my brain *had a hole in it* | Taylor | 119 |
| the *sucking empty hole* that is my brain | Schultz | 67 |
| She could not have known how *empty* my brain still was | Schultz | 149 |
| **MIND AS CLOSED/LOCKED CONTAINER** | | |
| Even though my brain remained *lined with filing cabinets it was as if all the drawers had been slammed shut.* | Taylor | 48 |
| I kept repeating the word to *find* those *files, open them* and remember. | Taylor | 85 |
| A *black box*, words locked inside, no door, only a few words drifting outside | Resch | 7 |
| But *most of the pieces are still in the black box. I clutch at the door, wrestle to pry it open . . . reach in, and scramble around to find pieces to fit.* | Resch | 30 |
| Even this far out from the stroke, *I can't open the black box of words at will.* | Resch | 60 |
| *the black box of words gone.* | Resch | 129 |

production, and the process of rehabilitation in terms of finding and tidying files, and Resch describes the changes in her word production abilities in terms of the properties of the container.

***WORD PRODUCTION AS MOVING OBJECTS THROUGH THE BODY.*** This metaphor is used by all of the authors, often to describe the sequential nature of word production, with a contrast made between "head" vs "mouth" to describe a subjective awareness of distinct stages of processing (see Table 3). There does not appear to be a precise and consistent set of mappings between level of impairment and place in body, but there is a distinction made between relatively more central lexical processes being described as in the 'head' or 'brain,' and more peripheral sub-lexical ones as in the 'mouth' or 'throat.'

***WORDS AS MANIPULABLE, MESSY OR DISGUISED OBJECTS.*** The ability to use a word was often described in terms of the manipulability of an object, particularly through 'grab' or 'grasp.' This metaphor was used more for receptive than productive language, but was sometimes used to describe difficulty in maintaining a representation in working memory, or to describe a subjective awareness of self-monitoring difficulties in language production (i.e., aspects of word production which may involve receptive language processes). Manipulability was also used to describe articulatory difficulties in terms of the ease of moving an object from the mouth.

**Table 3.** Variations on the conventional metaphor WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER used to describe more specific aspects of word production difficulties.

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **WORDS AS OBJECTS MOVING THROUGH THE MIND AND BODY** | | |
| the spelling of his name finds *its place in my head* then *a place in my mouth* | Schultz | 96 |
| the *laborious task of forcing* an idea *through my caved-in brain* to the paper | Wulf | 122 |
| until the word finally rattled *off my tongue* correctly: Tarantula! | Marks | 82 |
| I . . . set a cupped hand in front of my face as though I were waiting for a word *to fall into it* | Maria | 85 |
| you *disentangle the least bit of wiry fluff* that has been haunting your tongue for half an hour | West | 93 |
| A few others *slid easily off my tongue* | Mills | 63 |
| there are no words *coming to* my mouth! | Resch | 2 |
| *smooth* words *fall out of* my mouth | Resch | 108 |
| **WORDS AS MANIPULABLE OBJECTS** | | |
| I cannot *grasp, in my mind*, the words I'm using ready for the next time they *slip away* | Lubbock | 111 |
| However, I couldn't *grab it* in time to say it in a normal conversation. | Broussard | 82 |
| I cannot *grasp* [numbers] reliably when I am saying them or . . . hearing them. | Schultz | 133 |
| you *disentangle the least bit of wiry fluff* that has been haunting your tongue for half an hour | West | 93 |
| **WORDS AS MESSY/JUMBLED OBJECTS** | | |
| all the facts are *jumbled* in your mind | Maloney | 48 |
| my *cluttered and fully occupied* mind | Mills | 152 |
| I remember those *jumbled* thoughts only too well | West | 10 |
| a *futile clutter of grossly amalgamated* syllables | West | 99 |
| a *gallimaufry* of phonemes | West | 108 |
| **WORDS AS DISGUISED/WRONG CONTAINER** | | |
| A small idea *disguised* as a word is not a word at all. For instance Robitracing or my own word Turps. | West | 51 |
| I heard a cry of Inderal *pretending to be* the anti-hypertensive Cozaar and of Cozaar *pretending to be* Inderal. (Or even of Cozaar *pretending to be* Cortazar!) | West | 69 |
| I was unaware of the *contents* of what I was saying | Broussard | 78 |
| the "*empty words*" I used meant the item or object which appeared in my mind. | Broussard | 82 |
| **PERIPHERAL WORD PRODUCTION DIFFICULTIES AS WORDS MELTING/ DISINTEGRATING** | | |
| when said aloud are a *mess of slop* | Wulf | 58 |
| the sounds I was making were a *sludge of language* | Marks | 119 |
| your speech really *disintegrates* | Douglas | 163 |
| **PHONOLOGICAL WORKING MEMORY DIFFICULTIES AS WORDS EVAPORATING/ DISAPPEARING** | | |
| Phrases came to me in a flash, and I wrote them down immediately, before they *disappeared* and became irretrievable. | Mills | 105 |
| words will *cascade* . . . from my mind, and if not captured in type instanter, it may be too late. They were such right words - why must they *evaporate* so soon? | Wulf | 72 |
| I tried to say things (and sometimes came close) that had a *"fading"* quality | Broussard | 66 |

Another way in which more detail could be given about the nature of the impairment was through the addition of details about the properties of the physical objects. Metaphors of 'jumble' and 'clutter' were often used to describe difficulty with identifying and using a target 'idea' or 'fact' from various alternatives, suggesting selection difficulties at a lexical semantic level. This metaphor was, less frequently, applied to other levels as well, with West using it to describe difficulty selecting the required sublexical units. Other elaborations of WORDS AS OBJECTS which similarly describe difficulty distinguishing words from one another were the use by West and Broussard of WORDS AS DISGUISED and WORDS AS (WRONG) CONTAINERS to describe a mismatch of semantic and phonological representations. Examples of metaphors which attribute additional properties to WORDS AS OBJECTS are given in Table 3.

***WORD PRODUCTION DIFFICULTIES AS A LOSS OF SOLIDITY.*** With successful word production represented as the transfer of a physical object, there were mappings

available for word production difficulties through metaphors of a loss of solidity. There were two groups of such metaphors: melting or disintegration, and evaporation (see Table 3). Melting or disintegration was used to describe the erroneous production of a successfully retrieved wordAn object that melts or disintegrates is something still perceptible to others, but which has changed shape and is difficult to manipulate, thus providing an apt mapping for the production of phonological paraphasias or articulatory difficulties. In contrast, when something evaporates, it is not perceptible. This metaphor was used to describe a difficulty prior to speech, in which no attempt at production was made.

***WORD PRODUCTION AS A JOURNEY/HUNT.*** Metaphors of animals and people moving through landscapes were used by most authors (see Table 4). This metaphor is similar in its basic logic to WORD PRODUCTION AS MOVING AN OBJECT OUT OF THE BODY, but with additional mappings available in the scaled-up metaphorical environment. This was used to describe the effortful and time-consuming nature of word retrieval in terms of distance or barriers in the landscape; the possibility of partial activation as being 'near' a word; internal self-cuing and circumlocution as finding alternative routes; and neuroplastic improvement as the repeated travel of a path creating a better path. The animation of words provides mappings for processes occurring outside of the person's sense of control, often in terms of hunting or herding disobedient or reluctant animals or people, a metaphor used by West to describe disordered activation and production of speech errors. A more idiosyncratic metaphor of animacy was Mills' descriptions of sleeping or drowsy 'thoughts' or 'ideas,' possibly reflecting a subjective difference arising from the different aetiology of TBI.

***APHASIA AS BODILY IMPAIRMENT.*** Distinctions between more central and more peripheral difficulties could also be made using a metaphor of WORD PRODUCTION DIFFICULTIES AS BODILY IMPAIRMENT, or as a 'problem' with a particular body part (see Table 5). The use of these metaphors of the 'place' of the difficulty as a way to metaphorically map different levels of impairment is made especially clear by the authors who use this metaphor to describe difficulty at multiple stages of word processing. This metaphor also provided a mapping for the description of difficulties with self-monitoring stages of processing as a problem with 'hearing,' used by Schultz, Broussard and Marks. A different use of this metaphor was the description of MOTOR PLANNING/ ARTICULATORY DIFFICULTIES AS PROBLEMS WITH WALKING, with the self, the tongue, speech activity, or words themselves are represented as the person having difficulty walking. This metaphor could also describe successful speech as running or walking, compensatory strategies as aids to walking, and in one instance as a phenomenologically distinct form of self-monitoring of errors where in contrast to the more common descriptions of 'hearing' an error, Broussard (2016) uses the metaphor of an interrupted motor movement: "Not unlike *stubbing a toe, I could feel it* . . . in the same way I could feel an error" (p.83).

**Table 4.** Examples of the conventional metaphor WORD PRODUCTION AS A JOURNEY/HUNT, with an emphasis on MIND AS LANDSCAPE used to describe effort, difficulty and use of strategies, and an emphasis on WORDS AS ANIMATE to describe a lack of control, or production of errors.

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **WORD PRODUCTION AS A JOURNEY/HUNT (MIND AS LANDSCAPE)** | | |
| First *stumbling all about* the phrase . . . then *stumbling* further as *I worked each word in turn through the mazes* of my corrupt language. | West | 164 |
| the information kept *getting lost traveling* around my brain *looking for an open bridge to cross* from one lobe to another | Mills | 13 |
| I used opposites as a *short-cut* to recall words. This search method allowed me to *overcome (bypass really) the linguistic roadblocks* of my aphasia | Mills | 185 |
| Sometimes words were found in funny little places called "the back way." If the sentence I was trying to say was, "I'll wear a blue dress" . . . *the back way detour became* "My husband likes to find me in blue" | Wulf | 54 |
| I had to continue to use my voice,*find pathways and plod over them* often enough to *make them visible* to thoughts sent from my mind and less likely to be *erased from lack of trodding* | Wulf | 55 |
| When I couldn't find a word, it felt like *a bridge leading* to the word *had been burned* . . . I could *get there* (eventually) by *looking for other (less complicated) bridges*. | Broussard | 121 |
| Frustration . . . with fatigue . . . *chokes out my flimsy path* to words like *brambles concealing roses*. | Resch | 36 |
| **WORD PRODUCTION AS A JOURNEY/HUNT (WORDS AS ANIMATE)** | | |
| Every time I settled on an idea that would give me courage, it *flew from me at top speed and left me floundering in its wake like a rodeo dancer* | West | 119 |
| Of all those [words] *milling around in self-evident joy*, it's hard from my point of view to distinguish them from each other. | West | 126 |
| *decided to go on a slightly different route* from the one prescribed for it | West | 155 |
| the *misbehavior* of ordinary words . . . some of the right words cannot be said and *others take their places without mercy* | West | 175 |
| to *persuade* the right words, or any words, to leave their *cozy nest* in my mind to *traverse the rocky road* through my brain to the outside world | Wulf | 134 |
| The ideas are there, but they're . . . well, *asleep, dormant, waiting for a transfusion* | Mills | 297 |

***APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF and SELF AS MACHINE/COMPUTER.*** A different metaphor type with which difficulties were related to different body parts was the fragmentation and personification of parts of the person (see Table 6). 'Brain,' 'mind,' 'mouth' were all personified, as were mental processes and aspects of language, such as 'inner voice,' and 'monitor.' 'Brain' or 'mind' were used in juxtaposition with the self and were described as carrying out high level cognitive tasks that would in conventional language be ascribed to the self, as in Schultz' "my head slowly and deliberately thinks out my condition." These uses of personification were often used to describe complicated disruptions to feelings of agency and control vs automatic processes occurring outside the self in speech production and self-monitoring. MIND AS MACHINE/COMPUTER was similarly used, though less often, to describe similar disruptions to a sense of agency. These metaphors were also used by Lubbock to describe the variability of his symptoms, as he describes different aspects of his language 'stalling' and 'glitching' or 'working automatically' at different times.

**Table 5.** Examples of conventional metaphor APHASIA AS BODILY IMPAIRMENT used to specify and differentiate impairment at different stages of word production.

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **WORD PRODUCTION DIFFICULTIES AS BODILY IMPAIRMENT** | | |
| I felt like my *tongue had been cut out* | Douglas | 91 |
| My *tongue gets twisted* as well as my *brain* | Wulf | 127 |
| all the words are lost. Then there is a *problem with my mouth*. | Schultz | 65 |
| I am not *hearing* the word I have said myself | Schultz | 118 |
| I was starting to actually *hear* my language *hiccups* | Marks | 105 |
| my *ears weren't on right*, my *mouth wasn't on right* either | Marks | 0 |
| Something had gone *wrong with my face, including the head, the mucous membranes, and the jaw that was sealed up beyond all repair* | West | 88 |
| Your *throat is in spasm* | Maloney | 48 |
| I had been saying things (literally, talking out loud) for a month before I realized I needed to *hear* what I had been saying | Broussard | 80 |
| **WORD PRODUCTION DIFFICULTIES AS PROBLEMS WITH WALKING** | | |
| I continued to *stumble over* my words | Marks | 340 |
| My *tongue trips* over each part of each word. | Schultz | 129 |
| Talking *plods and bumps and limps in last.* | Wulf | 15 |
| The speaking solution here is sometimes not to be slow, careful, not trying, but *running at it swiftly*, casually, and it will come out fluently | Lubbock | 112 |
| Not unlike *stubbing a toe, I could feel it* . . . in the same way I could feel an error. | Broussard | 83 |

### *Novel Systematic Metaphors*

While most of the metaphors used drew on conventional metaphors for communication, a subset of authors used novel metaphors to describe particular symptoms. A small range of such metaphors occurred, with overlap in the authors who used them. Their pattern and function was different than the recurring use of conventional metaphors, as they appeared less often, usually in extended passages, were often marked as important or metaphorical by the author, and in the context of describing the difficulty of conveying their experience, or the strangeness of their symptoms.

***APHASIA AS SILENCE and APHASIA AS A SPIRITUAL EXPERIENCE.*** Several authors used metaphors of silence to describe a lack of inner speech (see Table 7). Taylor and Marks describe this state of mind in the greatest detail and accord it the most importance. Resch uses the same metaphors, although she is describing an apparently milder language impairment and does not link these metaphors as clearly to specific language processes. West and Wulf make briefer use of them in reference to the acute stage of aphasia, as does Lubbock towards the end of his account of increasing loss of language. The authors who used this metaphor also described this experience of silence as a positive mental state, often using spiritual or religious terms, and sometimes involving a sense of expansion, unity or fluidity and bliss. The return of inner speech is described as, at least in some ways, a painful loss, and a return of 'noise' and anxiety.

***APHASIA AS A DISMEMBERED TREE.*** The novel metaphor APHASIA AS A APHASIA AS A DISMEMBERED TREE was used by Marks, Resch and Maria, and elaborated in detail by Maria and Marks, who used in extended descriptions, in the context of rejecting or elaborating

**Table 6.** Examples of APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF and SELF AS MACHINE/COMPUTER

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF (BRAIN/MIND/MENTAL PROCESS PERSONIFIED)** | | |
| While my *monitor is usually on duty* there are too many times when fatigue *whispers "don't pay attention to him"* and I don't | Wulf | 55 |
| I omitted to *tell* my brain the *speaker had a voice* | West | 127 |
| and then for the brain to *consciously say* the correct word . . . And somehow your head *hears it and makes sense of it* | Schultz | 173 |
| My brain *could compare* the difference between what was right and what was wrong, *without being conscious* of it. | Broussard | 93 |
| My mind *was attempting* to speak | Maloney | 44 |
| **APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF (MOUTH/THROAT PERSONIFIED)** | | |
| Talking is tiring and if done too much at a time muscles controlling speech *get very uppity and scream at me "We're not gonna struggle thru one more word"* | Wulf | 55 |
| I could only make sense of the lines I was trying to say by *catching my mouth off guard* | West | 165 |
| My tongue *builds the formation of* each sound long after my mind *directs it* | Schultz | 65 |
| **SELF AS MACHINE/COMPUTER** | | |
| The rhythm is delivered, but the words, the phonemes, are chaotic, or simply the articulation *stalls entirely* | Lubbock | 31 |
| There have been small dysphasic *glitches* . . . since the start | Lubbock | 137 |
| I heard myself stuttering *like a car engine* | Marks | 82 |
| to *run it back through* re/who're/your head as a *check spell?* | Schultz | 173 |
| then I put my brain *back on scan* and eventually I *access the right data* | Taylor | 48 |
| thoughts must be *programmed* through one's brain | Wulf | 125 |
| The *manual process* slowly disappeared as the *automatic sequence* took over. | Broussard | 44 |
| In order for me to say a word, my brain requires me to use a *signal or a switch* . . . to move my hand slowly across a table or across my other hand as I verbalize the word. | Maloney | 51 |
| language seems to enact a *signal or a mesmeric function, to the distress of the signaler or mesmerist* | West | 111 |

on conventional metaphors suggested by others (see Table 7). In describing how the parts of the previously entire entity are still present, but the connections between them have been damaged or destroyed, this metaphor describes the subjective experience of difficulty in making semantic associations. Marks, Maria and Resch all describe an effect of aphasia on cognition, initial receptive problems, and semantic paraphasias.

## *Relating Metaphors to Psycholinguistic Models/Theory*

The symptoms described using these metaphors can be interpreted in light of psycholinguistic theories and models. Table 8 summarises the hypothesised links between the systematic metaphors used and psycholinguistic descriptions. The results do not align strictly with one single theoretical approach or model, but indicate the importance of considering certain processes which may be better described by some models than others. Below is a summary of the main aspects of psycholinguistic theory which relate to the metaphors described above.

**Table 7.** Examples of novel metaphors APHASIA AS SILENCE, APHASIA AS A SPIRITUAL EXPERIENCESPIRITUAL EXPERIENCE and APHASIA AS A DISMEMBERED TREEDISMEMBERED TREE

| Metaphorical expression *(vehicle words in italics)* | Author | Page # |
|---|---|---|
| **APHASIA AS SILENCE** | | |
| *the Quiet* . . . was much more interesting than my medical state | Marks | 4 |
| *the Quiet* had become harder to access as my *inner and outer voices had become louder* | Marks | 138 |
| those *little voices*, that brain *chatter* . . . were delightfully *silent*. | Taylor | 42 |
| the *dramatic silence that had taken up residency inside* my head | Taylor | 75 |
| The *silence I heard* after the stroke | Resch | 127 |
| the balm only found in the *quiet of the infinite* | Wulf | 34 |
| I more than once yearned for a *quiet world*, akin to the world that once blighted me | West | 47 |
| Getting *quiet* . . . Writing, there is *no voice* . . . *Quiet* but still something? | Lubbock | 144 |
| **APHASIA AS A SPIRITUAL EXPERIENCE** | | |
| floating in this *meditative state* | Marks | 18 |
| I didn't want to give up *Nirvana* | Taylor | 132 |
| *Beginner's mind* is here now . . . No words required | Resch | 140 |
| In the beginning hours of aphasia . . . were moments of *refreshment, of clarity, of truth glimpsed, of immanent peace*. | Wulf | 144 |
| It was all a matter of *comparative illusion*, best taken care of by some poor sucker anxious for *cosmic aggrandizement* | West | 39 |
| **APHASIA AS A DISMEMBERED TREE** | | |
| like a *tree of wisdom which has been uprooted, dismembered bit by bit, branches, leaves, roots and fruit, and that the trunk has been totally severed. Like a trunk, branches, leaves, roots and fruits, words and phrases float around in my head.* | Maria | 82 |
| Like the *tree, I am stripped of the branches* of my speech. | Resch | 79 |
| Aphasia was like a *mad gardener that sliced the branches and limbs away from the trunk. This sparse topiary cut me off* from my usual points of reference, keeping me from associating my thoughts with one another | Marks | 101 |

### *Modularity*

The subjective symptoms align with a broadly modular language architecture even in breakdown. The level of detail varied, with a general distinction made between central and peripheral processes, which could potentially map onto more than one psycholinguistic level. However, even when multiple processing levels were affected, descriptions highlighted the distinct phenomenology of these impairments, as seen in West's account of acute global aphasia. These distinctions were made with reference to different places in the body (see Table 8, CONTAINERS AND OBJECTS and BODILY IMPAIRMENT).

### *Connectionist Processes*

Despite these broad distinctions between modular levels, there were aspects of the subjective descriptions which reflect processing within, and interactively between, these levels. These can be seen through descriptions of difficulties with the activation, selection, and retention of phonological word forms as solidification or disintegration (see Table 8 CHANGE OF STATE, FLUIDITY, SOLIDITY). Partial activation, internal self-cuing, and neuroplasticity were also described, in particular using metaphors of travel through landscapes (see Table 8 JOURNEYING THROUGH A LANDSCAPE).

### *Cognitive Processes*

Multiple authors highlighted difficulties with attention and cognitive processes as contributing to their word production difficulties; conversely the authors who described

**Table 8.** Summary of the suggestions made in this study about how metaphors used in subjective descriptions may align with our objective understanding of word-production difficulties.

| Vehicle Domain | | Target Domain |
|---|---|---|
| **CONTAINERS, OBJECTS** | | **WORD-PRODUCTION; MIND; LEXICON; MENTAL PROCESSES/REPRESENTATIONS** |
| Objects | → | Words; Cognitive processes/skills |
| Container | → | Mind/Part of mind; Words |
| Looking for an object in a container | → | Attempt to retrieve phonological word-form |
| Locked/closed containers | → | General difficulty with word-retrieval |
| Theft or loss of objects | → | General difficulty with word-retrieval |
| Locating/moving object in 'brain' | → | Relatively central word-finding processes |
| Locating/moving object in 'mouth' | → | Relatively peripheral word-production processes |
| **CONTAINERS; OBJECTS** | | **WORDS; SYNTACTIC, SEMANTIC AND PHONOLOGICAL REPRESENTATIONS** |
| Containers | → | Phonological lexical representation; syntax/sentence |
| Contents | → | Semantic or conceptual representation; emotion or other non-linguistic mental state |
| Disguise/mismatched contents/empty | → | Phonological lexical representation used to express erroneous or idiosyncratic meaning |
| Slot | → | Syntactic information/ lemma |
| **COMPUTER; MACHINE** | | **MIND; LANGUAGE; WORDS** |
| Computer; telecommunication system; | → | Mind; brain |
| Program | → | Mental process |
| File | → | Word |
| **BODILY IMPAIRMENT** | | **LANGUAGE IMPAIRMENT** |
| Problem with brain or head | → | Relatively central word-finding processes; cognition |
| Problem with mouth, throat or tongue | → | Relatively peripheral word-finding processes |
| Problem with ears | → | Problem with receptive language, including self-monitoring |
| Problem with walking or mobility | → | Difficulty with fluency, or general word-production |
| **CHANGE OF STATE; FLUIDITY; SOLIDITY** | | **WORD-PRODUCTION; PERCEPTION** |
| Solid object | → | Phonological lexical representation, word |
| Fluid | → | Concept or emotion; successful connected speech |
| Solidification | → | Phonological access; word production |
| Evaporation | → | Failure to maintain (phonological) activation |
| Turning to 'mush;' melting | → | Erroneous production of correctly retrieved phonological lexical representation |
| The sea/general fluidity | → | Severe aphasia; Perceptual experience |
| **HUNTING OR HERDING ANIMALS; JOURNEYING THROUGH A LANDSCAPE** | | **ONLINE WORD-PRODUCTION; WORD-PRODUCTION STRATEGIES** |
| Animals/people/animate beings | → | Words |
| Locations | → | Words |
| Landscape | → | Mind/mental processing, or word/language |
| Herder/hunter/traveller | → | Person with aphasia |
| Pathways | → | Semantic to phonological lexical access |
| Closeness to animal or location | → | Partial phonological retrieval |
| Creating/clearing a path | → | Neuroplastic improvement of phonological lexical access |
| Destruction of paths or landscape | → | Difficulty with phonological lexical access |
| Shortcuts, back-routes | → | Internal word-retrieval strategies; circumlocution |
| Animal escaping | → | Failure to maintain activation of word |
| Animal/person overpowering or tricking another | → | Erroneous word-production |
| Difficulty recognising person or animal | → | Difficulty selecting correct phonological lexical representation |
| **FRAGMENTATION AND PERSONIFICATION OF PARTS OF SELF** | | **LEVELS OF IMPAIRMENT; MENTAL PROCESSES** |
| Mind | → | Processes of conceptualisation/lexical retrieval |
| Brain | → | Processes of lexical retrieval |
| Mouth/tongue | → | Sublexical processes of phonological assembly and motor control/dysarthria |
| Persons/conscious agents (non-self) | → | Mental processes; self-monitoring; inner voices |

(*Continued*)

**Table 8.** (Continued).

| Vehicle Domain | | Target Domain |
|---|---|---|
| **DISMEMBERED TREE** | | **SEMANTIC SYSTEM; APHASIA** |
| Tree | → | Language; semantic system |
| Parts of tree | → | Words or concepts |
| Person dismembering tree | → | Aphasia; stroke |
| Severed connections | → | Difficulty with semantic association |
| **SILENCE** | | **IMPAIRED INNER SPEECH** |
| Voices, chatter, personified part of mind | → | Inner speech |
| Silence | → | Lack of inner speech |
| Spiritual experience/bliss | → | Emotional/cognitive effects of lack of inner speech |

semantic and inner speech impairments described an impact of language impairment on cognition. Authors also described a disrupted sense of agency and conscious control over language production (see Table 8 COMPUTER OR MACHINE; FRAGMENTATION AND PERSONIFICATION OF PARTS OF SELF).

### *Self-monitoring*

Self-monitoring was primarily described through personification of aspects of the self (see Table 8 FRAGMENTATION AND PERSONIFICATION OF PARTS OF SELF) and through metaphors relating to 'hearing' or 'catching' the words (see Table 8 CONTAINERS AND OBJECTS or BODILY IMPAIRMENT). A single instance of a different metaphor was used to describe self-monitoring, in Broussard's description of 'feeling' an error as being "Not unlike stubbing a toe" (p.83), which he contrasts explicitly with 'hearing' mistakes (see Table 8 BODILY IMPAIRMENT).

### *Inner Speech*

The authors who described impaired inner speech identified this as the key feature of their aphasia, affecting cognition and sense of self, as well as affecting language production, engagement in rehabilitation and conceptualisation of 'recovery' (see Table 8 SILENCE).

## Final conclusions

We set out to 1) explore which metaphors are used to describe the subjective experiences of word finding difficulties in written accounts by people with aphasia, 2) to consider whether these descriptions reflect the details of the cognitive and linguistic impairment as described by psycholinguistic models, and 3) to consider whether particular processes or symptoms which are described are not accounted for in some models or theories. These research questions are addressed in order below.

Predominantly conventional metaphors for communication and cognition are used to describe the subjective experience of word finding difficulties in aphasia. That is, the everyday metaphors that we use can be extended and elaborated to map many aspects of disrupted word production in aphasia. Certain symptoms were described using more novel metaphors, which were also explicitly highlighted as being unusual, pervasive and hard to explain to others. These novel metaphors were used by an overlapping subset of authors who experienced impairment of inner speech, cognitive involvement, difficulty making semantic associations, and initial receptive symptoms. It is a clinically important

finding that some people with aphasia experience a profound alteration of experience, which is hard to describe even after recovery of adequate language (requiring creative use of novel metaphors), and which affects motivation, sense of self and attitudes about recovery and language use.

A reported lack of inner speech was particularly noteworthy as a symptom which multiple novel metaphors were employed to describe, in strikingly consistent ways across several accounts. The authors who emphasized this symptom described not merely recovering or losing language, but renegotiating their relationship with language and verbal thought, and confronting spiritual and existential questions, regardless of their premorbid beliefs or interests. It is important for speech and language therapists to understand that some people with aphasia may be preoccupied with such experiences and questions. It may lead to complex emotions about language recovery and engagement in therapy as described in these accounts. It is also useful for psychologists, hospital chaplains, and the family and friends of those with aphasia to be aware of as an important experience which may affect a person's values and personality. Mumby and Roddam (2021) provide a valuable tool to support people with aphasia in communicating about these topics.

The details of the subjective experience of word finding difficulties aligns with psycholinguistic and neuropsychological theory. Even when multiple levels of processing were affected for an individual, the subjective description distinguished these different aspects of the impairment. The level of detail was not always as fine-grained as psycholinguistic theory: often a general distinction was made between more central and more peripheral processes, with these experiences possibly mapping onto more than one psycholinguistic level. However, at times distinctions were made which map onto specific levels of processing and even the way in which processing is disrupted within that level. The differences between difficulties with activation, selection and retention of a phonological word form were consistently described by multiple authors. It is useful for clinicians to know that impairment of different stages of word production difficulties in aphasia can be experientially very distinct, even when behaviourally similar and when there are multiple severely impaired stages. Careful attention to the way that people with aphasia describe their symptoms can provide a valuable source of information to be integrated with objective measures.

This suggests that clinical practice should make wider use of more complex and synthesising models of word production such as Roelof's WEAVER++/ARC (2014), which includes processes of attention and self-monitoring, goal-referenced control, selection, and spreading activation. Assessment with reference to a model which allows for description of impairment to these processes has the potential to improve understanding and communication about the aspects of impairment which are salient to people experiencing aphasia. Such a model also draws our attention to the role of consciousness in word production, as a part of typical processing, as potentially disrupted by impairment, and as being able to contribute to compensation or recovery.

## Limitations and Future Directions

Certain limitations arise unavoidably from the use of published autobiographies. The primary limitation is that these accounts were not produced in controlled research settings,

and the degree of editorial support or alteration is unknown. The sample of people with aphasia included in the analysis is not representative, as the writing and publishing of a book requires considerable internal and external resources (language and cognitive skills, time and energy, access to publishers or the knowledge or support to publish independently, etc.). Triangulation with other methods will strengthen these results, such as interview-based metaphor analysis, which can use rigorous controls, obtain objective behavioural and neurological data, and would allow for checking of codes with participants.

Certain aspects of language processing are more available to conscious awareness than others. For instance there were numerous descriptions of self-monitoring consistent with a receptive-language based theory of self-monitoring, but this may be because a methodology which takes the reported contents of consciousness as its data finds a fit in models which incorporate consciously accessible representations. The single instance of a description of self-monitoring which is consistent with the alternative account of a production-based monitor was provided by Broussard, who describes a particularly deliberate and nuanced process of reasoning about the nature of his language processing, and so might be expected to report some aspects of word production which are less apparent to introspection or less amenable to description. Thus on the basis of this data we may argue for the inclusion of self-monitoring through receptive language networks in clinical models as a salient aspect of language production, but not against the possibility that much self-monitoring may be production-based.

Further analysis of this data will explore in greater depth the role of inner speech, and the use of metaphors for metacognition about impairment and recovery. Future work will explore the use of metaphor to describe symptoms of word production difficulties in aphasia through other methodologies, such as semi-structured interview, group discussions, questionnaire or through visual materials. Such work would also allow for neurological information to be obtained and incorporated into the analysis.

Continued research in this area would support the development of a communication tool for the visual and verbal presentation of metaphors to improve clinical communication between speech and language therapists and their clients with aphasia. The 'Metaphor Menu for people living with Cancer' (Semino, 2019) provides a model for such a tool. This research illustrates that careful attention to the way that people with aphasia describe their symptoms can provide a valuable source of information to be integrated with objective measures, in research and in clinical practice.

## Note

1. The typographic convention of SMALL CAPS is used to distinguish these abstracted systematic metaphors from the actually used vehicle terms that occur in the data.

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## Appendix A Summary of biographical factors and aphasia characteristics in the accounts analysed.

This table summarises the information provided in the books about the author's background and impairment. Descriptive clinical terms are applied for clarity which are not used in the texts, for example, 'non-fluent' for speech described as 'slow and halting.'

| Book | Author | Aetiology | Aphasia Characteristics | Biographical Factors |
|---|---|---|---|---|
| *Stroke Diary: The Secret of Aphasia Recovery* (2016) | Broussard | Ischaemic stroke at around 60yrs. | Fluent aphasia, semantic & neologistic paraphasias, 'empty' speech with use of fillers. Difficulties with insight, self-monitoring and working memory. | First career as naval engineer, later PhD and employment in workforce development. Living with wife. |
| *My Stroke of Luck* (2002) | Douglas | Stroke at 79yrs. | Non-fluent aphasia, apraxia & dysarthria. Unimpaired comprehension and cognition, intact inner speech. | Actor. Living with wife. |
| *Until Further Notice I am Alive* (2012) | Lubbock | Left temporal lobe tumour progressing over two years, leading to his death at 53yrs. | Gradually worsening aphasia, fluctuating symptoms, variation in which modalities most affected. Periods of relatively preserved writing. | Arts journalist. Living with wife and young child. |
| *Finding My Voice with Aphasia: Walking through Aphasia (2013)* | Maloney | Left temporal lobe stroke in early 50s. | Receptive and expressive language difficulties, short-term memory problems. | Teacher with interest in dyslexia. Previously an accountant. Living with father. |
| *A Stitch in Time: The year a brain injury changed my language and life (2017)* | Marks | Left middle cerebral artery haemorrhage at 27yrs, damaging perisylvian area and basal ganglia. | Expressive language difficulties, and apraxia. Initial lack of inner speech and receptive aphasia, impacting self-monitoring of speech. Difficulties with reading, writing, executive functioning and working memory. Emotional, social and personality changes. | Actor and doctoral student. Moved back in with parents after stroke. |
| *A Mind of My Own: memoir of recovery from Aphasia (2004)* | Mills | Penetrating parietal-occipital injury in a motorcycle accident at age 32. | Post-traumatic amnesia, "significant nonfluent" aphasia with initial receptive/auditory processing difficulties. Memory problems. Difficulties with pragmatics, concrete thinking. Altered time perception and cognition. | Classics professor. Moved back in with mother and brother. |

(*Continued*)

(Continued).

| Book | Author | Aetiology | Aphasia Characteristics | Biographical Factors |
|---|---|---|---|---|
| *Without Utterance: Tales from the Other Side of Language (2012)* | Resch | Ischaemic left internal carotid artery stroke at 44yrs. Additional neurological impairments at 69yrs. | Expressive difficulties with retrieving words and with speech fluency, also affecting cognition and inner speech. Some initial difficulty with receptive language and/or auditory processing. Later impairment worsened speech and language and affected executive function and sensory integration. | Psychoanalyst and child development researcher. Amateur artist. |
| *Crossing the Void: My Aphasic Journey (2010)* | Schultz | Ischaemic left posterior middle cerebral artery stroke at 53yrs. | Fluent aphasia with variable expressive language, sometimes producing neologistic jargon. Some difficulties with understanding, especially of abstract concepts. Reading and writing impaired. | Co-owner with her husband of an outdoor activities shop. Jehovah's Witness. |
| *My Stroke of Insight: A brain scientist's personal journey (2009)* | Taylor | Left hemisphere haemorrhagic stroke, affecting parietal, temporal and frontal lobes, at 37yrs. | Nonfluent expressive aphasia, initial impairment of receptive language and inner speech. Altered cognition and perception, memory problems, difficulty with mental time-travel. | Academic and neuroanatomist, involved in science communication and mental health research. |
| *The Shadow Factory (2008)* | West | Stroke while in hospital with an infection at 73yrs. | Global aphasia, with initial delirium and amnesia. Recovery through one syllable perseveration, to being able to speak and write with use of circumlocution and semantic substitutions. | Novelist. Living with wife. |
| *Aphasia, my world alone* (1973) | Wulf | Stroke at 57yrs. | Difficulties primarily with expressive language. Phonological and mixed paraphasias. Initially receptive involvement persisting as difficulties with auditory scene analysis and attention. Self-monitoring impacted by fatigue. Typing easier than speech or handwriting. Reading difficulties, phonological and word-order errors in silent reading. | Small business co-owner with husband. |

(*Continued*)

(Continued).

| Book | Author | Aetiology | Aphasia Characteristics | Biographical Factors |
|---|---|---|---|---|
| *Jumbly Words, and Rights Where Wrongs Should Be: The Experience of Aphasia from the Inside* (eds. Edelman & Greenwood, 1992) | 'Maria' (short extract) | Stroke at 25yrs. | Anomia, semantic paraphasias, difficulty with self-monitoring of speech. Reading of paragraphs impaired. Cognition and personality affected. | Not given. |

## Appendix B Overview of how methodological trustworthiness was ensured at each stage of the analysis.

Identification of metaphors was carried out following the procedure outlined by Pragglejaz Group (2007) and Cameron and Maslen (2010), coding of Vehicle Groups and topics and description of systematic metaphors following the recommendations of Cameron, Maslen & Low (2010), and recommendations on working on large amounts of metaphor data were incorporated following Maslen (2010).

**Step 1: Familiarisation with Texts and Selection of Descriptions of Language Processing**

Familiarity with the texts through reading and rereading was a necessary foundational step in reducing researcher expectation and bias. It was crucial initially for understanding idiosyncratic expressions used to communicate about aspects of language processing. These expressions can involve unique metaphors, abstract concepts, or shorthand phrases that encapsulate complex, contextually rich aspects of their experience of aphasia. Thus to identify relevant sections for analysis it was necessary to understand that for example, any reference by Marks (2017) to 'the Quiet,' by Wulf (1973) to 'the extra room in my head,' or by West (2008) to 'the BBC man' refer to aspects of language processing. The selection of relevant passages before the identification of potential metaphors reduced the risk of missing metaphors due to researcher expectations (Cameron & Maslen, 2010). An inclusive approach was taken to selection of relevant passages as it was not always possible to draw a clear distinction between descriptions of impact and of the impairment. The inclusion of disputed cases allowed for as comprehensive a dataset as possible to be compiled, while reducing the risk of missing relevant metaphors and lessening the influence of researchers' subjective decision-making on case-by-case decisions.

**Step 2: Metaphor Identification**

Trustworthiness was maximised through initial training, consensus decision-making and documentation of decisions, and a final check for consistency, following the recommendations of Cameron and Maslen (2010). Two group workshops with the research assistants were conducted, followed by individual training sessions and checking of expressions identified until a reliability rate of >80% for twenty consecutive items was reached (with this process repeated for each book). Once a consistent standard of identification was established, regular group discussions were implemented to maintain this consistency. Decisions on inclusion and exclusion criteria which resulted from problematic cases were recorded (see Appendix C), and the first author carried out a final check using these criteria across all of the sources. Familiarity with the texts also supported the next stage in the analysis as some conventional metaphors may not be immediately conspicuous, or their metaphoricity may not be apparent from a single instance. However, when such metaphors appear repeatedly, or are in some instances elaborated and more obviously metaphorical, this provides justification for their inclusion.

**Step 3: Coding of Vehicle Terms and Topics**

Reliability in coding of vehicle groups was maximised through collaborative decision-making in regular group discussions between the first author and research assistants, and cross-checking of all data by at least two researchers, with each book checked by the first author and at least one research assistant (Cameron, Low & Maslen, 2010). A two-level coding system was used. 'Vehicle Group 1' codes used language close to that of the source texts, whereas 'Vehicle Group 2' provided a higher level of abstraction. This structure helped ensure that broad categories or over-interpretations did not overshadow the nuance of the original data. It also allowed easy cross-checking of 'Vehicle Group 2' labels against 'Vehicle Group 1' codes, ensuring they were true to the original expressions. We grouped metaphor vehicles before adding topic codes, following Cameron Low and Maslen's (2010) recommendation that this helps researchers to "avoid trying to second guess what the speakers meant and concentrate on the words they actually said."

**Step 4: Description of Systematic Metaphors**

The first author led the description of systematic metaphors, due to the need for familiarity with the entire dataset and the full autobiographical accounts. To triangulate this process, another researcher conducted an analysis on four accounts, identifying five systematic metaphors which were used to describe word production. This independent analysis agreed on the two most prevalent metaphors (with minor variation in wording and emphasis: LANGUAGE/WORDS AS OBJECTS, and WORDS AS SPATIALLY LOCATED). SELF AS MACHINE/COMPUTER was also found, as in the current study; the remaining two metaphors WORD-FINDING AS FIGHT, and SELF AS CHILD, are present in the larger dataset but are not discussed in the current study as they did not feature as prominently as the metaphors which are included. Thus there was considerable agreement across these two independent interpretations of the data, with agreement on the two most prevalent metaphors, and differences in the description of less common metaphors which are consistent with use of a narrower dataset.

Following Maslen's (2010) recommendation that "it is important to avoid treating the dataset as contiguous data, losing touch with the contextual meaning of its original context," the original full accounts were regularly consulted during this stage of analysis. Care was taken not to introduce theoretical preconceptions into the analysis, with the interpretation of systematic metaphors carried out without reference to specific models of word production. The description of systematic metaphors were carried out without the imposition of preconceived theoretical models.

**Step 5: Interpretation**

The first author engaged in regular discussions with the second and third authors to reflect on her interpretation of the data, and to address issues related to expectation and bias. To minimise the influence of theoretical preconceptions, the description and interpretation of systematic metaphors was carried out without prior commitment to one or more specific models of word production. Rather, psycholinguistic concepts were applied in a piecemeal and pragmatic way in response to the data. That the findings provide support for symptoms represented by different types of model provides evidence that this was effective. The emergence of themes which were not anticipated, and which were not pre-existing research interests of the authors (such as spiritual experiences relating to inner speech) also reflect success in reducing the impact of theoretical preconceptions on description of systematic metaphors.

Many of the autobiographical accounts include objective reports or descriptions of their symptoms. While these do not constitute directly collected objective data, they do provide some evidence for the validity of the interpretations given here. A further source of internal evidence is in the robustness of the relationship between the vehicle groups identified, and the specific aspects of word production which they describe. Cameron, Low and Maslen (2010) state that "the more robust the relationship [between semantically similar metaphor vehicles and the topics they express], the stronger the claim that can be made about the underlying factors it reveals." That there is high consistency within and across accounts between use of particular vehicle groups and the aspects of word production being referred to is evidence of the systematicity of the metaphors described

## Appendix C

Collaborative decisions made on inclusion criteria through discussion of initial problematic cases.

- Include similes and explicit or marked metaphors
- Include common verbs and nouns (e.g. 'make')
- Include conventionalised metaphors (e.g. 'word-finding')
- Include personification
- Include negated/rejected similes and metaphors (e.g. 'words were not lost')
- Metaphor vehicles can be multi-word
- Include metaphorical reference to language or communication (e.g. 'the word spoke')
- Include descriptions of 'inner speech' and mental imagery ('I heard/saw the word in my head')

## Appendix D

Extract of the final list of Vehicle Group 2 codes and the Vehicle Group 1 codes which they include (most frequent twelve shown here).

**physical objects/structure**: change shape or state, cover/disguise, connection/touch, construction/make/attach, empty/void/gap, exist/thing, handle/grasp/carry, moving through mind/body/environment, object of perception, possession/lost/found, share/give/receive, tidy/messy/match/sort/broken, tool

**personification/animation**: animate/moving, breed/evolve/grow, controller/guard, criminal/rebel/trickster, having thoughts/feelings, hunting/fugitive, monster, negotiation/competition, social/personal relationship, soldier/employee/servant, summon/return/appear/materialise, teach, waking/sleeping

**disintegration/fragmentation**: body/mind as parts, decomposition/crumbling/bits and pieces, language as broken, self as multiple, world as fractured

**container/barrier**: barrier, being in/in/searching inside, clothes/cover/disguise, container size/capacity, specific container (if not other VG1), empty/void/gap/blank, file/folder/filing cabinet, freedom/escape, full/empty, house/wall/window/door, in, limit/boundary/beyond, locked/closed/key/hidden in/prison/cage, open, pierce, putting in/taking out, searching inside

**displacement**: alien/foreign, detached, different planets/space/earth, different world/inner vs outer world, displaced identity, far away, isolation, reality/unreality, self as other,

**foreign/alien language/creative writing**: code/idiosyncratic meaning, dictionary, foreign/translation/language(s), grammar, language community/dialogue, poetry, story/narrative, voice/spoken language, wordplay/games, writing/orthography/text,

**fluid**: absorb/osmosis/soak, air/gas/evaporate/cloud, drown/flounder, float/drift, flowing/seeping/raining/erupting, fluid/water, mud/mire/bog/wading, pond, river/stream, sea, swimming/sinking, tank/reservoir/pump

**journey/landscape**: advance/travel, adventure/quest/explore, hill/climb, landscape/scene, led/follow/guide/map, road/path/avenue, setback/block/false start/dead end/lost

**machine/computer**: car/train/vehicle, computer/info processing/circuitry, mechanical/electrical/hydraulic

**violence/competition**: battle/war; blast/barrage, dangerous, defeat, defence/siege, fatal/lethal, force/seize, game/sport/physical effort, physical fight/assault/struggle, retreat/advance/battlefield, revenge, shock/stun/silence, soldier/army, survive, victim, weapons/resources

**clarity/darkness**: clarity/lucidity/light, darkness, fog/blur

**viewpoint/visibility**: fractured/distorted vision, insight/see in, invisibility, obscured vision, perspective/focus, reflect/mirror

# Chapter 5. Inner Speech in Aphasia: A Metaphor Analysis of Autobiographical Accounts

## Abstract

**Background.** Inner speech in aphasia is a rapidly expanding research area, but the concept of inner speech can be defined in numerous ways. It is an inherently subjective experience, so first-hand accounts provide an ideal data source to explore the range of ways in which it can be affected in aphasia.

**Aims.** This research aims to describe the metaphors used by four authors with aphasia to describe impaired or preserved inner speech, and to interpret the findings in relation to the inner speech literature.

**Methods & Procedures.** This study carries out a metaphor-led discourse analysis of descriptions of inner speech in four autobiographical accounts of aphasia. Metaphorical expressions describing language processing were identified and coded, then systematic metaphors (i.e., the related concepts which are used consistently to describe a particular topic) were described. The metaphors used to describe inner speech were then analysed, with attention to patterns of use and contextual information.

**Outcomes & Results.** Two types of inner speech — Phonological IS and Dialogic IS — were described as distinct and dissociable experiences, and were described using different metaphors. Two authors described impaired dialogic IS, using INNER DIALOGUE AS INNER VOICES/PERSONS/MONOLOGUE/DIALOGUE and APHASIA AS SILENCE/ FLUID/ SPIRITUAL EXPERIENCE. Two other authors described impaired phonological IS using WORDS AS OBJECTS, MIND AS CONTAINER and INNER SPEECH AS HEARING WORDS. A double dissociation of these different concepts of inner speech is seen across two accounts. Different impacts on language processing and cognition were also described.

**Conclusions & Implications.** Recent studies on inner speech in aphasia have focused on phonological IS, but in these accounts only impaired dialogic IS was described explicitly as a

'lack of inner voices'. This research demonstrates that subjective accounts of inner speech can help clarify theoretical discussions and clinical implications.

## Background

"Whether or not people with aphasia have access to their 'inner voice' might create a huge variety in the way people experience the condition" suggests Lauren Marks (2017, p. 300), who experienced aphasia with a loss of inner speech following a haemorrhagic stroke at the age of twenty-seven. This importance of inner speech to the experience of aphasia has been widely reported by people with aphasia. Thomas Broussard, another author with aphasia, notes with regard to word-production that "Many people with aphasia use the aphorism, "We can see it but we can't say it"" (Broussard, 2016, p.82). Researchers have made similar observations. Fama et al. (2017) introduce their experimental investigation of the subjective experience of inner speech in aphasia with the statement that "Many individuals with aphasia describe anomia with comments like "I know it but I can't say it."" Alexander, Langland-Hassan and Stark (2023) state that "Many people with aphasia and people without brain injury talk to themselves in their heads, i.e., have 'inner speech.'" As well as illustrating the widespread interest in inner speech in aphasia, these four quotations reflect the diversity of experiences which can be described as 'inner speech': access to an 'inner voice,' an inner 'seeing', 'hearing', or 'knowing' of a word, and the experience of 'talking to oneself.' While inner speech is a familiar concept in everyday life and in various fields of academic research, its definition is not straightforward.

Exploration of inner speech in aphasia is a rapidly expanding research area, with innovative new methodologies being developed and applied (see review by Fama & Turkeltaub, 2020). There is a recognition within this growing literature in aphasia that inner speech is a complex concept, which is defined in various ways in the broader inner speech literature. Different researchers suggest different ways to make conceptual distinctions between types of inner speech. These include the categorization of inner speech as:

subjective or objective (Fama & Turkeltaub, 2020), fully conscious or less conscious (Geva, 2010), phonologically expanded or semantic and condensed (Sierpowska et al., 2020), predominantly motoric or perceptual (Brown, 2008), or along multiple dimensions (Alexander, Langland-Hassan & Stark, 2023). This multiplicity of definitions is unsurprising given the nature of inner speech and the difficulties in its scientific investigation: it is a private mental experience, involves multiple underlying cognitive and linguistic processes, and is variable in modality, content and frequency even across neurologically healthy individuals (Heavey & Hurlburt, 2008).

There is a need to clarify which of the different ways of conceptualising inner speech reflect psychological real processes. Distinctions amongst linguistic processes are not merely theoretically interesting, but may lead to dissociations in patterns of impaired and preserved functions in aphasia. Clarifying the range of concepts which can be designated 'inner speech' is an important step in providing a basis for the interpretation and synthesis of the growing literature. First-hand accounts of the experience of inner speech in aphasia can make an important contribution to this conceptual clarification. Such accounts are available in autobiographies produced by people with aphasia, some of which describe at length and in detail the private experience of inner speech in various contexts. This source of insight is underexplored; our research addresses this gap by investigating the metaphors used to describe inner speech by authors with aphasia.

Unlike behaviourally observable language processes such as overt word-production, inner speech is only directly available to introspective observation. Objective behavioural and neuroimaging measures have been shown to be valid tests of inner speech (Fama et al., 2017; Kühn et al., 2014), but this validity rests on subjective reports such as 'hearing a voice in your head,' 'talking to yourself,' or 'thinking in words.' Subjective experience thus

grounds the concepts of inner speech and should be the starting point for investigating its conceptualization. Given the variation in the frequency, form and content of inner speech and the multiple levels of linguistic-cognitive processes involved, we should expect a wide range of subjective experiences of impaired and preserved inner speech in aphasia. This study uses metaphor-led discourse analysis to systematically investigate descriptions of the subjective experience of inner speech in aphasia in autobiographical accounts of aphasia, in order to gain insight into the range of experiences of impaired or preserved inner speech. Metaphor-led discourse analysis provides a tool for fine-grained and bottom-up analysis of a large quantity of discourse data. This methodology has been used in wide range of clinical populations (e.g. Semino et al., 2015; Littlemore, 2019; Plug et al., 2009). Recent research has shown the validity of this method to identify the metaphors used to describe word finding and production difficulties in people with aphasia (Tichborne, Liu & Bose, 2023).

To ensure that all relevant descriptions of inner speech from these accounts are included in the analysis, the scope of research into inner speech must first be delineated. Two methodological approaches have been taken to the investigation of inner speech, each of which targets a different linguistic level of representation. In a review of multidisciplinary research in inner speech Alderson-Day and Fernyhough (2015) designate these as the 'Working Memory' and the 'Vygotskian' approaches. The 'Working Memory' tradition investigates phonological inner speech (phonological IS), addressing the internal activation of phonological representations, usually at the single-word level. The theoretical framework most commonly used to contextualise this work is Baddeley and Hitch's (1974) model of an inner 'phonological loop' as a component of working memory, which underlies inner speech as it is used for tasks such as verbal rehearsal, and consists of an active process of articulatory rehearsal by means of which we can maintain a phonological form in the passive

phonological store. The 'Vygotskian' tradition investigates dialogic inner speech (dialogic IS). It draws on Vygotsky's work on child development which theorises that inner speech is the internalisation of the child's dialogues with caregivers.

Phonological IS has primarily been investigated through the administration of tasks which require conscious awareness and manipulation of phonology word forms, such as picture-based rhyme judgement. Dialogic IS has been explored through observation of children and adults engaged in tasks which are presumed to require access to inner speech, and through the use of subjective measures of introspective self-report such as questionnaire (Alderson-Day et al., 2018) or 'Descriptive Experience Sampling,' in which participants are asked to record their experiences in the moment preceding a 'beep' in daily life (Heavey & Hurlburt, 2008).

In recent research in inner speech in aphasia, investigations of phonological IS have predominated. This may be because the investigation of dialogic IS involves linguistically demanding forms of self-report and is therefore less accessible to people with communication difficulties. A review by Fama & Turkeltaub (2020) found twelve studies relevant to inner speech in aphasia. Of the ten studies which directly examined inner speech five measured the ability to carry out phonological manipulations, four measured self-report during silent picture-naming (one used both of these measures), and one interviewed participants about experiences of IS during word production difficulties in daily life. All targeted a phonological construct of IS, whether through objective measures or subjective report. Dialogic IS has received less recent attention in aphasia, with the exception of work by Alexander, Hedrick and Stark (2023) and Morin (2005; 2009). Alexander, Hedrick and Stark (2023) investigated the frequency and content of inner speech in the daily lives of 24 participants with aphasia through Descriptive Experience Sampling and questionnaires,

demonstrating that methods used to investigate dialogic IS can be successfully used with people with aphasia. Morin (2005, 2009) illustrates his arguments about the impact of impaired dialogic IS on self-identity and consciousness with selected passages from two well-known autobiographical accounts of the experience of aphasia (respectively Moss, 1972, and Taylor, 2016).

From the results of research into phonological and dialogic IS there is evidence that first-hand descriptions of people's experiences of inner speech in aphasia can provide an important source of insight. Fama et al. (2017) found objective correlates for three different experiences of full or partial awareness of linguistic representations in the absence of the ability to produce the word aloud: successful inner speech, a tip-of-the-tongue state, and an 'idea without the word.' This shows that fine-grained aspects of processing related to inner speech can be consistently subjectively reported but is limited in restricting participants to confirming or denying researcher-defined experiences. Conversely, Morin's (2005, 2009) exegesis of two subjective accounts of impaired inner speech show the value of detailed analysis of autobiographical accounts for understanding the nature and impact of inner speech in aphasia. However, the use of selected excerpts to support a preexisting theoretical interest limits the potential contribution of such accounts. Our research is prompted by the need for a systematic and bottom-up analysis of a range of subjective accounts, to minimize the influence of researcher preconceptions and obtain insight into the heterogeneity of experiences of preserved and impaired inner speech in aphasia.

**The Current Study**

In this research we investigate subjective descriptions of inner speech to understand how the experiences described in these accounts can contribute to our understanding of inner speech in aphasia. A number of people with aphasia have written detailed

autobiographical accounts of their experiences. Their accounts are produced independently and without time pressure, and without the potentially priming environment of a research or clinical setting. That they are long form means that often multiple descriptions of the same symptom or experience are included. Unlike clinical notes or privately collected subjective reports, the autobiographies are all available as published accounts, allowing other researchers to confirm or challenge our interpretations. This study therefore makes use of this data to explore the subjective experience of inner speech in aphasia. Metaphor-led discourse analysis provides a tool for fine-grained and bottom-up analysis of this unique data source.

Metaphor-analysis can capture ordinary language descriptions of inner speech as well as more novel and creative ones. Abstract concepts such as inner speech are described through metaphorical mappings with more concrete domains (Lakoff & Johnson, 1980). Thus, such widely used expressions as 'inner speech,' 'hearing a word in your head,' and 'having a conversation with yourself' are themselves metaphorical, drawing on the concrete understanding of containers, sensory experience and personhood to describe mental processes. Metaphor analysis provides a way to systematically analyze descriptions of inner speech through exploration of which metaphors are used in which context. Metaphorical expressions are extracted from discourse data and coded in order to group together instances of metaphor use into categories which reflect the systematic use of particular conceptual metaphors. These systematic metaphors are written in SMALL CAPS to distinguish them from individual metaphorical expressions. Certain conventional systematic metaphors may be commonly used to describe a particular experience, or relevant or closely related topics (e.g., MIND AS CONTAINER). There may also be use of novel metaphors or novel extensions of conventional metaphors, which are often more obviously metaphorical

or creative (e.g., MIND AS PLANT), and which are used to integrate new conceptual elements or reconceptualize a concept (Philip, 2016).

The aim of this research is to carry out a metaphor-led discourse analysis on autobiographical accounts of aphasia: to describe the systematic metaphors that authors with aphasia use to describe inner speech; to explore whether these descriptions align with the processes identified as 'inner speech' in aphasiology research; to identify whether there are dissociations between phonological and dialogic inner speech in these accounts.

## Method

### Data Source

Four autobiographical accounts of aphasia were selected to explore the experience of inner speech in aphasia. These were *My Stroke of Insight* (Taylor, 2016), *Stroke Diary II* (Broussard 2016), *A Stitch Of Time* (Marks, 2017), and *Crossing the Void* (Schultz, 2010). These books were selected from a set of 12 autobiographical accounts of aphasia (Tichborne et al., 2023) as the authors described experiences of inner speech, verbal working memory, verbal thinking, and/or inner dialogue or monologue. We provide a brief description of the biographical details of the author, their overall aphasic symptoms as described by the authors as well as an overview of how inner speech was experienced by them.

#### *My Stroke of Insight (Taylor, 2009)*

Jill Taylor is an academic and neuroanatomist, who had a haemorrhagic stroke at the age of 37, affecting her left parietal, temporal and frontal lobes. As a result, she experienced a non-fluent aphasia with some initial receptive difficulties. She describes the loss and recovery of inner speech as a defining feature of her experience of aphasia, and wrote a second book exploring the functions of inner dialogue in more depth (Taylor, 2022). She describes

fluctuating access to inner speech during acute stroke “my verbal thoughts were now inconsistent, fragmented, and interrupted by an intermittent silence” (Taylor, 2009, p.40). After the acute stroke she describes a period of five weeks (reported as personal communication with Morin, 2009) in which she did not have access to dialogic IS, followed by its gradual recovery. During this time she does describe successful use of an unimpaired phonological loop.

***A Stitch of Time (Marks, 2017)***

Lauren Marks, an actor and doctoral student, had a left middle cerebral artery haemorrhagic stroke at the age of 27, damaging her left perisylvian area and basal ganglia. This caused an expressive language impairment and apraxia, with some initial receptive and self-monitoring difficulties. She describes an initial loss of dialogic IS and of phonological IS. The impairment of inner speech is described as an important aspect of her experience, and as having an impact on her cognition, emotions, and personality. She notes a relationship between inner speech and spoken language: "external" and "internal" speech were inextricably linked for me” (Marks, 2017, p.299).

***Crossing the Void (Schultz, 2010)***

Carol Cline Schultz, co-owner of a family-run outdoor activities shop, had an ischaemic left posterior middle cerebral artery stroke at the age of 53. In her account she describes a resultant fluent aphasia, with some difficulties in receptive language and understanding abstract concepts. She describes a loss of functions which depend on phonological IS: a severe impairment of verbal working memory, a need to speak out loud to engage in self-monitoring, and the loss of phonological IS during reading.

***Stroke Diary II (Broussard, 2016)***

Broussard, formerly a naval engineer and then in workforce development, had an ischaemic stroke at around 60 years old, leading to a fluent aphasia, with some initial lack of insight into his difficulties. He describes several functions of phonological IS as impaired: short term phonological memory, problems with online self-monitoring, and silent reading. These are similar in nature to the problems Schultz describes but reported as having a less severe impact on general language processing.

**Metaphor Identification, Coding, and Description**

Metaphors describing language processing in these four accounts had already been identified and coded as described in Chapter 3, in the creation of the dataset, and systematic metaphors for word finding and production, including in inner speech, were described as reported in Chapter 4. For the present analysis a subset of data from the four selected accounts from the entire dataset was created (i.e. including receptive language, reading, and so on).

**Interpretation of Metaphors Used to Describe Inner Speech**

Metaphorical expressions related to inner speech, or which described a topic relating to Inner Speech, were manually selected from the original dataset. Vehicle groups (at the more general level of Vehicle Group 2) used to describe inner speech were: INNER VOICE/EAR/MIND'S EYE, SILENCE, RELIGION/SPIRITUALITY, and FLUID. In terms of topics, all descriptions of the various processes and functions identified as 'Inner Speech' in phonological IS and dialogic IS considered above were included, as well as any descriptions explicitly linked to 'Inner Speech' or verbal thought by the authors. Thus, all metaphorical expressions relating to the following were also included for analysis: the phonological loop and other forms of working memory, mental imagery with linguistic content or functions, descriptions of thought and reasoning, and inner dialogue.

This data was then used to explore in depth how each of the four authors described their experience of inner speech. Similarities, patterns, and recurring themes within and across the texts were examined. Throughout the analysis process, attention was given to the contextual elements surrounding the descriptions of inner speech by referring to the texts in their entirety. Reported neurological or psychological measures, changes over time, use of deliberate strategies for compensation or recovery, the time-course of symptoms, and the broader impact of symptoms on identity, perception and cognition were all considered in the interpretation of the data.

## Results and Discussion

This research aims to describe the systematic metaphors that authors with aphasia use to describe inner speech; explore whether these descriptions align with the processes identified as 'inner speech' in aphasiology research; and identify whether there are dissociations between phonological and dialogic inner speech in these accounts.

### Quantitative Overview

Table 2 shows the count of metaphors in the main vehicle groups which coded metaphorical expressions used to describe inner speech in the four accounts analysed. It shows a relatively greater use of INNER VOICE and SPIRITUALITY by Taylor and Marks, and of MIND'S EYE by Broussard and Schultz. The quantitative data shown here does not capture a qualitative difference in Schultz and Broussard's use of metaphors coded as SPIRITUALITY, which were mainly idiomatic uses of 'mystery,' 'blessing,' 'salvation,' and 'miracle.' In contrast, the metaphors coded as SPIRITUALITY for Taylor and Marks were novel and emphatic in describing an unusual experience.

**Table 2**

*Count of Metaphors describing Inner Speech by Relevant Vehicle Group Categories.*

| Author | Vehicle Group | | | | | |
|---|---|---|---|---|---|---|
| | INNER VOICE/EAR/MIND'S EYE | | | SILENCE | SPIRITUALITY | FLUID |
| | INNER EAR | MIND'S EYE | INNER VOICE | | | |
| Taylor (2009) | 3 | 8 | 10 | 19 | 31 | 60 |
| Marks (2017) | 1 | 2 | 10 | 26 | 25 | 23 |
| Schultz (2010) | 4 | 29 | 1 | 3 | 13 | 34 |
| Broussard (2016) | | 7 | | | 8 | 21 |

**Qualitative Analysis**

Dialogic IS is presented first, as this was described more explicitly as relating to 'inner speech' by the authors who described its impairment, despite receiving less attention in the literature. The metaphors used to describe impairment of dialogic IS, compensation for this impairment and the process of its recovery are described, as well as the metaphors used by authors who experience no impairment of dialogic IS. Phonological IS is then discussed, following a similar structure. Table 3 provides an overview of the patterns of impairment and preservation of inner speech which were described across the four accounts and which are presented in detail below. As Table 3 illustrates, the results show a dissociation of phonological IS and dialogic IS, with Taylor describing severely impaired dialogic IS with preserved phonological IS, and Schultz describing the opposite pattern. Table 4 lists the main systematic metaphors which were used to describe different aspects or types of inner speech in the four accounts.

**Table 3**

*Patterns of Impaired and Preserved Dialogic and Phonological IS Described in Four Autobiographies by People With Aphasia, Showing a Double Dissociation across Taylor's and Schultz' Accounts*

| | Dialogic Inner Speech | Phonological Inner Speech |
|---|---|---|
| Marks (2017)<br>*A Stitch in Time*<br><br>Left MCA haemorrhagic stroke. Aphasia and apraxia. | Impaired<br>"my inner monologue, my self-directed speech, had also gone almost completely mute" (p.17) | Impaired<br>"I could rarely see or hear the words in my own head." (p.31) |
| Taylor (2009)<br>*My Stroke of Insight*<br><br>Left hemisphere haemorrhagic stroke. Non-fluent aphasia. | Impaired<br>"Those little voices inside your head, reminding you or who you are and where you live, become silent." (p.79) | Preserved<br>"I was going to pay attention to nothing else that he said and just repeat the words over and over again in my mind, holding them in memory"[a] (p.91) |
| Schultz (2010)<br>*Crossing the Void*<br><br>Ischaemic left posterior MCA stroke. Fluent aphasia. | Preserved<br>"I am kept awake thinking, thinking without words. I try to find the words for what I am thinking" (p.81)<br><br>"My mind thinks and it remembers"[b] (p.29) | Impaired<br>"her name erases itself from my brain almost as soon as she says it"[a] (p.50)<br><br>"I do not know whether it is a for-real word until I say it correctly"[c] (p.127)<br><br>"the title does not say words to me"[d] (p.62) |
| Broussard (2016)<br>*Stroke Diary II*<br><br>Ischaemic stroke Fluent aphasia. | Preserved<br>"I could tell there was a "third person" talking to a "first person" and I was both of those people." (p.57)<br><br>"I had been thinking *then* (and had tried to express my intentions using fractured grammar) versus *now*, with a healing (not quite whole) grammar." (p.40) | Impaired (less severe impact)<br>"the working memory improvements I had built up over three years were damaged again"[a] (p.117)<br><br>"As soon as I could say it, I could tell it was wrong"[c] (p.81)<br><br>"I would look at every 'Bentley' sign... I was aware I couldn't pronounce it in my mind."[d] (p.56) |

*Note.* When the preservation or impairment of phonological or dialogic IS was less subjectively salient the quotations given describe the functions which they have been associated with in the inner speech literature: [a] phonological working memory; [b] mental time-travel; [c] external speech required for self-monitoring; [d] lack of a 'voice' in silent reading

**Table 4**

*Metaphors used to Describe Impaired and Preserved Dialogic and Phonological IS*

| | Dialogic Inner Speech | Phonological Inner Speech |
|---|---|---|
| Impaired | INNER SPEECH AS INNER VOICES/PERSONS<br>INNER SPEECH AS MONOLOGUE/DIALOGUE<br><br>APHASIA AS SILENCE<br><br>APHASIA AS FLUID<br>APHASIA AS RELIGIOUS EXPERIENCE | WORDS/LANGUAGE AS OBJECTS and MIND/PART OF MIND AS CONTAINER<br><br>INNER SPEECH AS HEARING/SEEING WORDS |
| Recovery or Compensation | Recovery:<br>As above, plus MIND AS PLANT<br>MIND/PART OF MIND AS MACHINE/VEHICLE | Compensation:<br>WORDS AS OBJECTS and MIND/PART OF MIND AS CONTAINER<br><br>INNER SPEECH AS SEEING WORDS |
| Preserved | APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF<br>WORDS/LANGUAGE AS OBJECTS and MIND/PART OF MIND AS CONTAINER | WORDS/LANGUAGE AS OBJECTS and MIND/PART OF MIND AS CONTAINER |

**Dialogic IS**

Impairment and recovery of dialogic IS is described by Taylor and Marks, both of whom emphasize the impact of this as profoundly affecting their cognition, sense of self, and motivation for recovery. Schultz and Broussard describe intact inner dialogue from early in recovery. The impairment of dialogic IS is more salient than its preservation; while Schultz and Broussard reflect on their access to this ability, and to post-stroke alterations to its content and form, these reflections do not receive the emphasis that impaired dialogic IS does in the accounts of Taylor and Marks.

***Impairment of Dialogic IS***

**Table 5**

*Metaphors used to Describe Impairment of Dialogic IS by Taylor and Marks*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| **INNER SPEECH AS INNER VOICES/PERSONS; INNER SPEECH AS MONOLOGUE/DIALOGUE; APHASIA AS SILENCE** | | | |
| 5A | *those little voices, that brain chatter* that customarily kept me abreast of myself in relation to the world outside of me were *delightfully silent* | Taylor | 42 |
| 5B | I welcomed the reprieve that *the silence* brought from the *constant chatter* that related me to what I now perceived as the insignificant affairs of society | Taylor | 43 |
| 5C | The most notable difference between my pre- and post-stroke cognitive experience was the *dramatic silence that had taken up residency* inside my head. | Taylor | 75 |
| 5D | Those *little voices inside your head*, reminding you or who you are and where you live, become *silent*. You lose memory connection to your old emotional self and the richness of this moment, right here, right now, captivates your perception | Taylor | 79 |
| 5E | my *inner monologue*, my self-directed speech, had also gone almost completely *mute* | Marks | 17 |
| 5F | It's hard to describe this *voice* exactly… It is the *internal monologue* that turns on in the morning, when we instruct ourselves to "Get up" and "Make breakfast." | Marks | 20 |
| 5G | It's a *voice* we use to monitor ourselves, to criticize or to doubt – and it can be pernicious this way. | Marks | 20 |
| 5H | With my *internal monologue on mute*, I was mainly spared from understanding my condition early on. | Marks | 20 |
| 5I | lacking my inner *voice* for a period of time made a profound impression on me | Marks | 300 |
| **APAHSIA AS SILENCE; APHASIA AS FLUID; APHASIA AS RELIGIOUS EXPERIENCE** | | | |
| 5J | in [the little voices'] absence, my memories of the past and my dreams of the future *evaporated* | Taylor | 42 |
| 5K | *My soul* was as big as the universe and frolicked with glee in a *boundless sea*… without the judgment of my left brain saying that I am *a solid*, my perception of myself returned to this *natural state of fluidity* | Taylor | 69 |
| 5L | when I had experienced myself as a *solid*, I had possessed the ability to experience loss… in this shifted perception, it was impossible for me to perceive either physical or emotional loss because I was *not capable of experiencing separation* or individuality | Taylor | 70 |
| 5M | in its place was the *radiant Quiet. The nourishing Quiet, The* | Marks | 18 |

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | *illuminating Quiet* | | |
| 5N | observations often lacked specific categories and *dimensions*, and a sense of my own personal preference | Marks | 20 |
| 5O | the *flow* of my mind was still mainly *Quiet* | Marks | 44 |

Several metaphors are used to describe the impairment of dialogic speech. They can be divided here into two groups of metaphors which frequently appear in combination in the texts. The first of these is INNER SPEECH AS INNER VOICES/PERSONS; INNER SPEECH AS MONOLOGUE/DIALOGUE; APHASIA AS SILENCE. These are similar to those used in the inner speech literature, and in everyday language in describing a typical presence of internal 'voices' or 'monologue.' When these are absent, the resultant state is described as 'silence' or 'quiet.' This latter metaphor is familiar as a goal of 'quieting the mind' or 'inner silence' in meditative practices which aim to detach from or reduce inner dialogue (e.g. Hernández et al., 2018). The second group of metaphors which occur in combination describe the cognitive impact of the experience of this state of APHASIA AS SILENCE, which is described using various metaphors, which combine the inner 'silence' with spiritual experiences, and with a sense of 'fluidity,' which is used to describe a sense of interconnectedness of self and world (again, similar metaphors are found in descriptions of meditative practice, Silvestre-López, 2020). Thus, the metaphor of APHASIA AS SILENCE plays a key role in descriptions of impaired dialogic IS, in bridging the two groups of metaphors which are described here. It is also emphasized by both authors, with Marks capitalizing 'the Quiet,' and Taylor describing it as the 'most notable difference' between her pre and post-stroke experience (see Table 5).

Taylor describes the loss of dialogic IS as a pervasive and important experience, affecting her cognition and perception more broadly. Taylor uses two main metaphors to describe the loss of dialogic IS. She repeatedly uses the metaphor INNER DIALOGUE AS

INNER VOICES in describing an absence of ‘little voices’ and of ‘brain chatter’ (Table 5, rows A, B and D), and she describes the resultant state of mind with a metaphor of APHASIA AS SILENCE (Table 5, rows A-D). These metaphors are often combined (Table 5, rows A, B and D). This silence is described as a positive state of mind (Table 5, rows A, B and K). Its positive aspects are repeatedly described with the metaphors APHASIA AS SPIRITUAL EXPERIENCE and APHASIA AS FLUID in combination with the use of APHASIA AS SILENCE (Table 5, rows K and L). Taylor relates this lack of dialogic IS to identity, mental time travel and broader cognition, and as affecting her emotion reaction to her stroke, using the same metaphors (Table 5, rows J-L).

Marks also describes a loss of dialogic IS as an important aspect of her aphasia, affecting not only language, but cognition and perception (Table 5, rows H, I, N and O). She defines this as a falling silent of INNER SPEECH AS A VOICE/PERSON (Table 5, rows F,G and I), as well as a loss of INNER SPEECH AS MONOLOGUE (Table 5, rows E and H). The resultant experience of this is described using APHASIA AS SILENCE, in combination with APHASIA AS FLUID and APHASIA AS SPIRITUAL EXPERIENCE, in particular with her descriptions of ‘the Quiet’ (Table 5, rows M and O). Marks, like Taylor, describes an impact on her broader cognition. She notes an effect on abstract thought and self-identity, describing a reduced ability to use categories in terms of a lack of solidity (Table 5, row N). She notes explicitly a reduction of ‘mental time-travel’ (p.15), of ‘sophisticated recollection and future planning’ (p.197). She explains a positive impact with reference to the functions of inner speech, noting its function in negative rumination, and also reporting that the impact on cognition had an initially beneficial emotionally protective effect (Table 5, rows G and H).

***Compensation for Dialogic IS with Visualisation***

Taylor describes attempting to use visual imagery, or 'thinking in pictures,' (using variations of the metaphors which she uses to describe preserved phonological IS as discussed below), to compensate for difficulties in use of dialogic IS for syntactic and semantic thought. She gives an example in describing her thought process when she is asked the question "Who is the President of the United States?" (pp.76-77). First she makes use of her intact phonological loop to activate the semantic representations from long term memory "I took the sounds of the key words and repeated them over and over again in my brain so that I would not forget what they sounded like. Then I would go on a process of exploration to identify a meaning that matched the sound of those words." The meaning for each of the concepts that she retrieves is "a picture in my mind," so to construct a meaning for the whole question she then attempts to "put together the two images – that of a President and that of the United States." This strategy is highly effortful, and is not successful, "my brain could not get from "President" and "United States" to "Bill Clinton," I gave up – but only after hours of probing and exhausting mental gymnastics."

***Recovery of Dialogic IS***

**Table 6**

*Metaphors used to Describe Recovery of Dialogic IS by Taylor and Marks*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| **INNER SPEECH AS INNER VOICES/PERSONS; INNER SPEECH AS MONOLOGUE/DIALOGUE; APHASIA AS SILENCE** | | | |
| 6A | Although I really loved the *bliss of a silent mind* I was relieved to know that my left brain had the potential to recover its *internal dialogue.* | Taylor | 118 |
| 6B | My left mind *thinks in language and speaks to me constantly.* Through the use of *brain chatter*, it not only keeps me abreast of my life, but also manifests my identity. | Taylor | 142 |
| 6C | A tiny portion of the *story-teller*, however, does not seem *to be unconditionally attached to my joy, and is excellent at exploring* thought | Taylor | 152 |

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | patterns that have the potential to really derail my feeling of inner peace | | |
| 6D | I give my *story-teller* full permission to *whine rampantly* between 9-9.30am and then again between 9-9.30pm | Taylor | 152 |
| 6E | *the Quiet* had become harder to access as my *inner* and outer *voices had become louder* | Marks | 138 |
| 6F | my now-working *inner voice was fixated* on the catastrophic | Marks | 195 |
| 6G | I… can't gauge how much of my *inner speech* came back post-stroke. I don't think it is at the level it used to be - or maybe I just won't let that happen - because I don't *welcome its many negative and self-defeating aspects.* | Marks | 344 |
| | **APHASIA AS SILENCE; APHASIA AS FLUID; APHASIA AS RELIGIOUS EXPERIENCE** | | |
| 6H | Making the decision to recover was a difficult, complicated, and cognitive choice for me. On the one hand, I loved the *bliss of drifting in the current of the eternal flow* | Taylor | 82 |
| 6I | The linearity of internal dialogue helped *build a foundation and structure* for my thoughts | Taylor | 118 |
| 6J | Via my *left brain language center's ability to say*, "I am," I become an independent *entity separate from the eternal flow* | Taylor | 142 |
| 6K | *The Quiet* is no longer my baseline, but it is something *I try to nurture*, and the moments when I connect with it feel *sacred* | Marks | 326 |
| | **MIND AS PLANT; MIND/PART OF MIND AS MACHINE/VEHICLE** | | |
| 6L | Paying attention to which *array of circuits we are concurrently running* provides us with tremendous insight into how our minds are fundamentally *wired*, and consequentially, how we can more effectively *tend our garden*. | Taylor | 156 |
| 6M | I view *the garden in my mind as a sacred patch of cosmic real estate*… I choose to *nurture those circuits that I want to grow and consciously prune back* those circuits I prefer to live without. | Taylor | 176 |
| 6N | my inner voice *turned on*…I suspect my uneasiness in November was at least partially related to its *reengagement* | Marks | 102 |
| 6O | I try to *nourish* the ones that are productive and helpful, and *starve out* the ones that aren't | Marks | 326 |

*Note.* APHASIA AS SILENCE is included in two sections here, as it appeared in combination with both sets of other metaphors, bridging the description of the subjective experience of the lack of dialogic IS and the impact of this on cognition and sense of self.

Taylor reports an initial ambivalence about the recovery of dialogic IS, using the same metaphors which are discussed in the above section. In evaluating the benefits of recovering dialogic IS she begins. In contrast to the earlier experience of APHASIA AS FLUID, she describes this return as a return of solidity (Table 6, row I).[1] The personification of dialogic IS allows Taylor to emphasize the fact that the returning dialogic IS is not under direct conscious control (Table 6, rows B-D). It also gives a ready mapping for her ambivalence, as she can describe a relationship with the personified processes which has both antagonistic and cooperative elements (Table 6, rows B,C,D and J). The metaphor also provides a mapping for an attitude and strategies which help her to navigate this ambivalence, represented as negotiation and compromise (Table 6, row D). The importance of the insight that internal dialogue is a process which can be engaged in carefully, consciously and in negotiation with inner voices, is reflected in Taylor's subsequent work which describes the emotional benefits of personifying different aspects of self and engaging in inner dialogue (Taylor, 2022).

Later in her account Taylor uses the metaphors MIND AS PLANT and MIND AS COMPUTER to describe a more complex conceptualization of agency and dialogic IS (Table 6, rows L and M). She recognizes that while instances of use of IS are outside conscious control, there is nevertheless a longer-term ability to inculcate habits of thought, and she thus does have some control over engaging and sustaining dialogic IS, and over its effects on emotions. The mappings of MIND AS PLANT allow her to describe these longer-term processes in terms of the pruning and tending of a garden, in combination with the mappings of MIND AS COMPUTER to describe the shorter-term automatic processes. Taylor repeatedly combines

[1] in wording which is reminiscent of Luria's description of dialogic IS as providing "the linear scheme of the phrase" without which his patients were "unable to construct verbal propositions." (Luria & Tsvetkova, 1968)

these metaphors in a way that allows her to map these two important aspects of dialogic IS in recounting how she resolved her initial ambivalence about its recovery.

Marks describes a similar ambivalence about the recovery of IS, as a loss of control, and she also describes a similar use of strategies in negotiating a relationship with this returning ability. She notes in a contemporaneous journal entry that Speech and Language Therapy "isn't just communicate/ing. It taking on a world of thoughts many occupied with anxiety and fears" (p.20). The return of inner language brings with it the loss of her experience of 'the Quiet' (Table 6, row E). This experience of a return of inner language as a return of anxiety continues, often using the metaphors of INNER SPEECH AS A VOICE/PERSON (Table 6, rows F and G). Marks, like Taylor, makes use of personification as well as MIND/PART OF MIND AS MACHINE/VEHICLE to emphasise a lack of agency as dialogic IS is recovered (Table 6, rows F, G and N). Marks describes a similar strategy to Taylor in managing this experience, also using the metaphor MIND AS PLANT to describe the ability to shape longer-term habits of thought (Table 6, row O).

***Preserved Dialogic IS***

**Table 7**

*Metaphors used to Describe Preserved Dialogic IS*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| **APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF** | | | |
| 7A | My mind *thinks and it remembers* | Schultz | 29 |
| 7B | Though wordless, my mind *races* | Schultz | 48 |
| 7C | What is left of my brain *thinks very hard* | Schultz | 53 |
| 7D | I could tell there was a *"third person"* talking to a *"first person"* and I was *both of those people.* | Broussard | 57 |
| 7E | As I considered my problems, metaphorical explanations *appeared like unbidden guests.* | Broussard | 72 |

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | **WORDS/LANGUAGE AS OBJECTS** and **MIND/PART OF MIND AS CONTAINER** | | |
| 7F | I had *organized* my mind for the work I needed to do when I get home | Schultz | 22 |
| 7G | there are worrisome thoughts *in my mind* | Schultz | 33 |
| 7H | I am kept awake thinking, thinking without words. I try to *find the words* for what I am thinking | Schultz | 81 |
| 7I | When one of those great old growth fir trees falls crashing to the ground, has the crash made a sound if no one has heard?... When one no longer understands the spoken word and can no longer speak, does one no longer *have thoughts in their head*? | Schultz | 107 |
| 7J | I had been thinking then (and had tried to express my intentions *using fractured* grammar) versus now, *with a healing (not quite whole*) grammar. | Broussard | 40 |

Schultz describes inner dialogue without phonological properties throughout her recovery. She reports that she is “thinking without words” (p.7, and Table 7, rows A, B and H), describing examples of mental time-travel, planning and problem-solving from early in recovery (Table 7, row F), often using metaphors of APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF to describe her ‘mind’ or ‘brain’ as thinking (Table 7, rows A-C). She describes the kind of ruminative anxiety which Taylor and Marks reported as initially absent (Table 7, row G). She finds her ability to think without words puzzling, or even paradoxical, wondering, and links this puzzle to the philosophical paradox of whether a tree falling in a forest makes a sound if no one has heard (Table 7, row I). This analogy seems to imply that only the sensory aspect of IS, that is the phonology, is missing from an otherwise linguistic experience. While elsewhere she describes some instances of complex visual and spatial thought (e.g. “I visualize the things I would do. The first thing would be to adjust the blades on the planer.” p.41), the subjectively paradoxical nature of what she describes suggests that visual and spatial mental imagery cannot fully account for her experience.

Similarly, her attempt to find 'words for what I am thinking' (Table 7, row H) could suggest that the 'thoughts' have some linguistic properties, despite a lack of phonology.

Broussard similarly reports the presence of an inner dialogue from the earliest stages of his aphasia. He describes initial confusion and anosognosia, and yet simultaneously engagement in complex reasoning about his situation, in particular while walking (e.g. "there was lots of time to consider (reflect, contemplate, ruminate) my situation," p.56). The linguistic status of the thought processes he describes is unclear as he recorded them as diagrams, which may reflect a visual modality of thought (e.g. "I drew a metaphorical picture of a mountain range with the letters from the word "APHASIA" written across the peaks... Since I could not write, I had been using many metaphorical drawings about what I was thinking." P.68). Nevertheless a form of inner dialogue is clearly explicitly described in places, predominantly with metaphors of APHASIA AS FRAGMENTATION AND PERSONIFICATION OF SELF (Table 7, rows D and E). Broussard also reports a syntactic impairment which affected thought as well as expression, thus providing additional evidence that this thought was linguistic, as for syntax to be disordered, syntax must be present (Table 7, 5J).

**Phonological IS**

In contrast to dialogic IS, impaired phonological IS is not described explicitly in any of the accounts as a 'loss of inner speech' or any close equivalent. However, it is clear from the descriptions given that what is being described is the type of mental process which is investigated in the tradition of phonological IS research.

***Impaired Phonological IS***

**Table 8**

*Metaphors used to Describe Impairment of Phonological IS*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | **WORDS/LANGUAGE AS OBJECTS** and **MIND/PART OF MIND AS CONTAINER** | | |
| 8A | Mentally *in my head* and physically in my mouth I try to remember the sound that comes when I see "ch" | Schultz | 43 |
| 8B | her name *erases itself from* my brain almost as soon as she says it | Schultz | 50 |
| 8C | I flap my arms to mimic the flitting thing. “Bird?” “Yes, - b – b – ird.” Bird. That is a short word and there is something about it that is similar to the bear word. Now I *have another word* to remember. *Bear* and – and - ???... I’ve *lost it* | Schultz | 53 |
| 8D | The flying thing name *did not stick in* my brain. *It was there. Now it is not* | Schultz | 55 |
| 8E | The new words *drain through my mind as through a sieve* | Schultz | 56 |
| 8F | the working memory improvements I had built up over three years *were damaged again* | Broussard | 117 |
| 8G | My past is erasing even as I ... teaching/practing myself words like "erasing" and "practing." After *each syllabul repairs*, it is forgotten | Marks | 100 |
| | **INNER SPEECH AS HEARING/SEEING WORDS** | | |
| 8H | I could rarely *see or hear the words in my own head* | Marks | 31 |
| 8I | The words were corrupted in such a way that I couldn’t jump from a mental appreciation for the words (that I could see) into a physical set of syllables (that I couldn’t say)… I would look at every ‘Bentley’ sign... I was aware *I couldn’t pronounce it in my mind* | Broussard | 56 |
| 8J | I could tell I couldn’t say some words… I actually could *see* those words in my mind. | Broussard | 51 |
| 8K | There were some words I couldn't *"see,"* but that wasn't because they were "lost." It was a different issue and a different deficit. | Broussard | 63 |

Schultz describes a severe impairment of verbal working memory. These descriptions primarily use the conventional metaphors of WORDS AS OBJECTS and MIND AS CONTAINER (Table 8, rows A-E). An experience while she is in hospital illustrates several important details of this impairment. She describes attempting to find the word ‘bird,’: “The familiar

movement of flying creatures. What is that word that names them?" (p.53) Her first word-finding attempt is a (possibly silent) articulation of a word encountered the previous day: "'Bear?' I mouth out loud. *No.*" This illustrates a possible impairment of internal self-monitoring, which she compensates for by physically articulating the word, allowing for external (auditory or kineasthetic) monitoring and an immediate successful judgement of the word being incorrect (elsewhere she states explicitly "I do not know whether it is a for-real word until I say it correctly" p.127). When she is able to ask a nurse for the word, she can recognize and repeat it without delay: "'Bird?' 'Yes, - b – b – ird.'" She also spontaneously notes a phonetic similarity to the incorrect word that she had produced: "there is something about it that is similar to the bear word." However she then describes a rapid loss of the representation: "Now I have another word to remember. *Bear* and – and - ???" From this short but detailed passage it appears to be specifically the articulatory rehearsal aspect of the phonological loop which is impaired: she cannot rehearse or perceive a phonological form without physically articulating it. She also reports a lack of IS when reading ("the title does not say words to me", p. 62). Schultz describes various impacts of this impaired phonological IS on language processing, including on 'relearning of words' (as described above), word-production ("the need to somehow remember the word until the next day so it can be used" p.94), comprehension ("my mind immediately forgets the words" p.15), and reading and writing ("I do not know how to write them down. I tell her I do not *hear* them." P.114).

Broussard also reports a deficit of phonological working memory, although this is more limited in its impact than the symptoms which Schultz describes. His awareness of this difficulty arises only when carrying out the particular demanding task of writing down a name from a letter-by-letter auditory presentation of the name, a task which increases in

difficulty following a second stroke (Table 8, row F). He describes impairment of phonological IS in reading of some words (Table 8, row I). His internal self-monitoring is also affected, with his ability to monitor his own overt speech recovering before his ability to monitor phonological IS ("As soon as I could say it, I could tell it was wrong" p.81).

Broussard describes some instances of an inner 'seeing' of words despite an inability to say them (Table 8, row J). Marks briefly notes an inability to 'see' or 'hear' words internally (Table 8, row H). In a contemporaneous journal entry, she also describes a difficulty with phonological working memory (Table 8, row G). The contrast between inner 'hearing' and inner 'seeing' of words is explored in more detail in the following section.

***Compensation for Phonological IS with Visualisation***

**Table 9**

*Metaphors used to Describe Recovery or Compensation for Impaired Phonological IS*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | **INNER SPEECH AS SEEING WORDS, WORDS/LANGUAGE AS OBJECTS** and **MIND/PART OF MIND AS CONTAINER** | | |
| 9A | The *blackboard in my mind visualizes* "e-l-e-v-e-n" | Schultz | 139 |
| 9B | With the spelled *image* of the letters "p-e-t-a-l-s" *in my head* my mouth is able to enunciate the sounds of the word | Schultz | 143 |
| 9C | I could not "say" the right word. I could *see the word in my mind*. | Broussard | 28 |
| 9D | If you couldn't say the word you wanted (but you could still *see it in your mind*), you could describe the item with other associated words. | Broussard | 120 |

As noted above, Broussard describes inner 'seeing' of words repeatedly throughout his account, rather than inner 'hearing' or 'saying.' That Marks specifically notes a difficulty with both 'seeing' and 'hearing' words provides some additional evidence that two distinct phenomenological experiences may be captured by these related metaphors. One possibility is that Broussard makes use of an ability to visualise the orthography of words in

compensation for an impairment to phonological IS (Table 9, rows C and D). If this is the case, it could explain why Broussard describes a less severe impact of impaired phonological IS on his language processing more broadly than does Schultz. Schultz describes relearning grapheme-to-phoneme conversion as a significant part of her rehabilitation, and following this she discovered that she was able to make use of visualised orthography as a compensatory strategy, initially as a conscious and effortful process to support word-finding (Table 9, rows A and B), but eventually describing that the "many cognitive steps appear to come automatically" (p.183).

Schultz describes an additional use of visualisation, as a tool for semantic self-cuing. She describes attempted word-finding of a road name, which is affected by her impaired phonological IS "I am trying to bring forth the *Jersey* sound word that fades in and out of my mind" (p.70). She describes a sequence of episodic memories and visual images which she maintains in her working memory until she is able to produce a semantically related word "Alice introduced me to a couple who milked Jersey cows… Brown comes into my imagination. But then only the colour, not the letters of the word. I could say it makes cream. Cream? Again, I can only picture its colour, its texture, its taste…If I had that word, I could tell Frank that Jersey cows made whipping cream… Then suddenly, 'Cow!' comes out. (pp. 71-72). This sequence shows a deliberate use of visual working memory to retrieve semantic associates of a target word, leading to partial success with the communicative goal.

***Preserved Phonological IS***

**Table 10**

*Metaphors used to Describe Preserved Phonological IS*

| | **Metaphorical expression** (with relevant context, *vehicle words in italics*) | **Author** | **Page #** |
|---|---|---|---|
| | **WORDS/LANGUAGE AS OBJECTS** and **MIND/PART OF MIND AS CONTAINER** | | |
| 10A | Mother, Mother, Mother. G.G., G.G., G.G. I kept repeating the words to *find those files, open them* and remember. Eventually, I kind of understood what a mother was and what G.G. represented. | Taylor | 85 |
| 10B | I decided that today I was going to pay attention to nothing else that he said and just repeat the words over and over again *in my mind, holding them in memory* until it was time to *blurt them out*. At the end of our visit, he asked me to recall the three items. With confidence I uttered, "Firefighter, apple, something Whippoorwill Drive. | Taylor | 91 |
| 10C | I remember pondering Tuna, tuna, tuna and no image or understanding *came into my mind*… I could not *find the file* for tuna salad | Taylor | 96 |

The day after her stroke Taylor describes the deliberate repetition of a phonological form to activate the related semantic representation, using a metaphor of MIND AS CONTAINER (Table 10, row A). She does not specify whether this was carried out with spoken or inner speech, but on the third day after her stroke she describes a similar use of repetition, this time in response to a test of verbal memory, in which it is clear that inner rather than spoken speech is used (Table 10, row B). In the seventeen-day period after her stroke and before surgery, Taylor describes further instances of inner repetition of words. Of particular note is another use of phonological repetition as a strategy to activate semantics (Table 10, row C). This example provides evidence that phonological loop rehearsal is being described: the experience is definitely 'inner' as she is 'pondering,' rather than speaking, and it is evident that this is repetition of a purely phonological representation, as the semantic information was not successfully retrieved. That she has successfully maintained the

representation despite a lack of activation of semantics is evidenced as she then repeats the word to ask for clarification (“So I queried, 'Tuna?’” p.96).

## Conclusion

The two approaches -- phonological IS and dialogic IS -- to inner speech taken in the literature target distinct and dissociable processes, as Table 3 illustrates. The descriptions used by the authors of the four autobiographies analysed here show consistencies in how these two different types of inner speech are described, shown in Table 4. There is consistency with the conventional ways in which inner speech is described, with dialogic IS described in terms of voices, dialogue and monologue, and phonological IS as the seeing or hearing of inner words. Conventional metaphors for language and communication were also used to describe impairment and use of phonological IS, reflecting its less subjectively salient nature. More novel metaphors were used to describe the impact of impaired dialogic IS, in particular APHASIA AS SILENCE. The use of different systematic metaphors to describe the impairment of different types of IS suggests that information about the intrinsically hard to measure processes of inner speech may be obtained through discussion of subjective symptoms.

This analysis has three key findings. First, there is a double dissociation between dialogic IS and phonological IS: Taylor describes severely impaired dialogic IS with intact phonological IS, and Schultz describes preserved dialogic IS with severely impaired phonological IS. Second, there is consistency within and across accounts in how these different types of inner speech are described (as presented in Table 4). Third, the processes involved in conscious awareness and manipulation of phonological representations, which are investigated by much recent research into inner speech in aphasia (see Fama & Turkeltaub, 2020), are not the processes which authors with aphasia describe as those

which are impaired when there is a loss of 'inner voices.' Only the impairment of dialogic IS is described by those authors who experience it, Taylor and Marks, as explicitly a loss of 'inner voices'. While impairment of phonological IS was not described as 'lack of inner speech', it often was described as the ability to 'hear' a word in the head.

## Clinical Implications, Limitations, and Future Research

The findings demonstrate that understanding the range of ways in which inner speech can be affected in aphasia is of clinical importance. There may be a profound emotional and cognitive impact of impaired dialogic IS, leading to ambivalence about recovery of language. This suggests that when dialogic IS is affected in aphasia it may be especially important for clinicians to take a counselling approach as part of any intervention, and to ensure access to psychological and/or spiritual support from a multidisciplinary team. On the other hand, impaired phonological IS, while it may have important effects on language processing, is less apparent to conscious awareness, but once identified and understood can be consciously compensated for (as described by Schultz, 2010), or improved through practice (as described by Broussard, 2016). This suggests that for people with impaired phonological IS it may be helpful to use objective and subjective measures to assess phonological IS, to provide detailed feedback, and to take a collaborative problem-solving approach to rehabilitation or compensation.

The findings of this study could be validated through a case series demonstrating the dissociation described here through objective behavioural measures. There are indications where measures of both phonological and dialogic IS have been used in the same experiment, that the results for each do appear to reflect this distinction (Kljajevic et al., 2017; Alexander, Langland-Hassan and Stark, 2023).

Another avenue for further research is suggested by the use of visualised orthography as a compensatory strategy when the phonological loop is impaired. This contrasts with the less successful use of visual imagery to compensate for difficulties with dialogic IS. There are several case reports in the literature of a compensatory use of the visuospatial sketchpad when the phonological loop is impaired (e.g., Levine et al., 1982, Usinskiene et al., 2019). The successful use of visualisation in compensation for impaired phonological IS, but not for impaired dialogic IS, is also of relevance to understanding models of working memory.

This research demonstrates that attention to first-hand accounts of inner speech can help clarify theoretical discussions and their clinical implications. The main topic of investigation in recent research into inner speech in aphasia has been phonological IS, however people with aphasia who report a 'lack of inner voices' are describing impaired dialogic IS. These two aspects of inner speech can be differentially impaired and have different impacts on language processing and cognition, making this distinction an important to research and to clinical practice.

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# Chapter 6. Metaphors for Metacognition about Aphasia

## Abstract

**Background.** Metacognition, 'thinking about thinking', consists of metacognitive knowledge and online awareness. Research suggests that metacognition contributes to recovery and generalisation of word finding in aphasia. We currently lack information about how metacognition is experienced first-hand, and how it is used spontaneously in recovery by people with aphasia.

Metaphor is used to reason about abstract experiences, and thus provides an ideal tool for this investigation. WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER is a widely used, idiomatic, 'conventional' metaphor for describing communication. In describing new experiences, novel metaphors may also be used which are often more strikingly metaphorical.

**Aims.** This research aims to explore how individuals with aphasia use metacognition for understanding and recovering from word finding difficulties. The research questions are: 1) Which metaphors are used in Broussard's *Stroke Diary II* (2016) and Schultz' *Crossing the Void* (2010) to describe metacognition about word finding difficulties and recovery of this ability? 2) Are these metaphors used in a problem-solving or a problem-setting way for metacognition about word finding?

**Methods & Procedures.** The study uses metaphor-led discourse analysis to analyse two autobiographical accounts written by people with aphasia: Broussard's (2016) and Schultz' (2010), as these authors described metacognition as playing an important role in their recovery. All metaphorical expressions describing word production difficulties were identified and coded, and the metaphors which were used to systematically describe word finding and production were described. The way in which these metaphors were used in the

two accounts was explored, in particular whether they were used for problem-solving (reasoning with a single, usually conventional metaphor) or for problem-setting (use of alternative, novel, metaphors to reconceptualise the problem).

**Outcomes & Results.** Schultz applies a problem-solving approach, initially using the conventional metaphor of WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER to conceptualise RECOVERY AS RETURNING OBJECTS TO A CONTAINER, then changing her focus through use of RECOVERY AS USING A DIFFERENT CONTAINER TO STORE OBJECTS to develop a successful internal compensatory strategy for word finding. Broussard describes a problem-setting approach, comparing various novel metaphors, including MIND AS COMPUTER/WORDS AS FILES, WORD AS COMPOSITE OBJECTS and WORD FINDING AS SOLIDIFICATION, WORD PRODUCTION AS A JOURNEY/HUNT (MIND AS LANDSCAPE), WORD FINDING EFFORT AS ENERGY/PRESSURE and APHASIA AS BODILY IMPAIRMENT/ REHABILITATION AS EXERCISE to gain insight into the nuances of his impairment and motivation to engage in intensive self-directed rehabilitation.

**Conclusions & Implications**. Metacognition is described by these authors with aphasia as supporting recovery of word finding ability through the development of specific strategies, or through gaining insight into the impairment and motivation for engagement in rehabilitation. Metaphors were used not only to describe metacognition but contributed to the structuring of the problems and solutions. Both problem-solving and problem-setting uses of metaphor were effective.

## Background

Metacognition is an umbrella term for the various skills involved in 'thinking about thinking'. It consists of two main components: *metacognitive knowledge,* that is, having a general understanding of our cognitive abilities and difficulties, and *online awareness*, that is, our ability to monitor and evaluate our cognitive performance in real-time (Toglia & Kirk, 2000). Recent studies have demonstrated that interventions to improve word finding which include a metacognitive element can lead to improvement, including on untrained items (Evans et al. 2021, Tilton-Bolowsky et al., 2022). Conversely, negative consequences can arise from difficulty with metacognition in aphasia, such as a lack of engagement with treatment and failure to repair errors or use compensatory strategies (Van der Stelt et al., 2021).

While there is emerging evidence that metacognition can play an important role in recovery in aphasia, we currently lack information about how metacognition is used spontaneously in recovery by people with aphasia, and about how metacognition is experienced and understood from a first-hand perspective. This research addresses this gap through the analysis of two autobiographical accounts which describe metacognitive reasoning about word finding difficulties, and which attribute a role in recovery to the authors' engagement in metacognition. To explore the details of this process we analyse the metaphors used for metacognition about impairment and recovery, considering both which metaphors are used, and how they are applied to the challenges of understanding word finding difficulties and recovery of word finding ability.

One important reason to understand the role which metacognition can play in recovery is that it may help in the development of interventions which aim at supporting metacognition. Metacognitive therapies can play a role in cognitive rehabilitation after brain

injury (Bampa et al., 2021). Interventions which encourage a metacognitive approach aim to improve generalisation and continued improvements following discharge (Skidmore et al.,2017). Techniques for supporting metacognition which have been used in neurorehabilitation primarily for occupational therapy include encouraging self-prediction, self-monitoring, and self-evaluation before, during and after a task, jointly reviewing a video, and providing verbal feedback and education (Fleming & Schmidt, 2015). There are barriers to adopting this type of approach in aphasia, as it is inherently linguistically demanding, and so there has not been as large a literature on its use in aphasia. Nevertheless Kersey et al. (2021) adapted a metacognitive strategy training approach to demonstrate its feasibility when combined with supported communication techniques in people with post-stroke aphasia. They adapted a protocol described by Skidmore et al. (2017) and used a workbook and therapist guidance to encourage participant selection of activities, self-evaluation, and application of generalisable strategies, in working with an occupational therapist in rehabilitation which targeted activities of daily living. Wadams et al. (2022) review research into the metacognitive treatment of deficits resulting from acquired brain injury (traumatic brain injury, stroke, and other causes), to examine the applicability of this research to Speech and Language goals in aphasia. They find that there is some evidence that metacognitive training could improve language performance in aphasia, but that the evidence was inconclusive due to the small number of studies which included participants with aphasia (five of twenty-nine), and the compound language and cognitive outcome measures which were used.

There is limited research into metacognitive intervention in language intervention is aphasia. Two recent studies incorporate metacognitive elements into semantically based interventions which target word finding. Tilton-Bolowsky et al. (2022) describe the

incorporation of metacognitive strategy training into semantic feature analysis. In their study participants' metacognitive knowledge and real time awareness was supported through the use of questions and feedback encouraging reflection on the experience of anomia in the moment, prediction of whether the word can be successfully retrieved, and the ability to state what strategies are useful when the desired word could not be found. Evans et al. (2021) combined metacognitive training which encouraged participants to attend to their balancing of speed and accuracy in word finding, with a variant of semantic feature analysis. Both of these studies found improved performance on trained and untrained items. However, the contribution made to the overall efficacy of the intervention by the metacognitive component is not known. Of relevance to the current study, Evans et al. (2021) include suggested "Analogies to understand anomia and speed–accuracy trade-offs" as an optional part of their personalised metacognitive training. The metaphors which they suggest can be used to support metacognition about the complex, abstract and novel domain of reasoning of balancing speed and accuracy in dealing with word finding difficulties include: selecting a tool from a drawer, tuning a radio, and building a case versus making a snap judgment. This was used with five of the nine participants suggesting that the researchers found that metaphor was a useful clinical tool to support metacognition for (a small) majority of the people with aphasia who were included in the study.

Experimental studies can demonstrate the efficacy of interventions which support metacognition. In developing such interventions, it is useful to also attempt to understand the mechanisms by which metacognition can contribute to recovery, for example through exploration of the relative effect of gains in metacognitive knowledge versus improved online awareness, and how these interact. Metacognition is an inherently private and multifaceted phenomenon, and the role it can play in recovery is likely to vary across

individuals. To explore the details of the mechanisms of how metacognition can improve word finding, a detailed qualitative analysis of the way in which metacognition supports recovery in individual cases can contribute to the interpretation of experimental studies.

Written autobiographies by people with aphasia provide a source of detailed accounts of the authors' experience of symptoms of aphasia and recovery over time, and the authors of some of these accounts suggest that metacognition played a role in their recovery. Aphasia is a heterogeneous disorder, and the problems to be solved in recovery may be very different from one person to another. As word finding and production difficulties are often the most immediate and salient symptom of aphasia which people are aware of, and it is also a common target of intervention, the focus of the analysis is on metacognition about word finding and production.

In some autobiographical accounts written by people with aphasia, metacognition is described as an important part of recovery. This research explores the use of metaphors for metacognition in two autobiographies which were selected due to their authors describing metacognition as playing a causal role in their recovery of word finding: Broussard's (2016) *Stroke Diary II* ("half the battle would be done by thinking about the problems", p.66), and Schultz' (2010) *Crossing the Void* ("I puzzle, wonder and ponder… In the end, it all coalesces into a strategy to compensate for my aphasia." p.152). In adopting a metacognitive approach to their symptoms and recovery, Broussard and Schultz undertake an iterative process of i) reasoning using their existing metacognition knowledge and on the basis of this conceptualising online tasks, and ii) attending to their experience and self-monitoring of online language use to note new or unexpected aspects or results of their cognitive and linguistic processing and thereby updating their existing metacognitive knowledge.

Reasoning about complex, abstract and novel phenomena is often undertaken with the use of metaphor (Lakoff & Johnson, 1980), and metaphor provides a way to explore the structure of each author's metacognitive knowledge, and the way in which they refine and update it. This process may be conscious or unconscious. Broussard explicitly discusses the importance of metaphor for metacognition: "I thought about lessons which could help me understand my deficits, using metaphors and my own life stories" (p.127).

Metaphor provides a useful methodological tool for the investigation of a large amount of discourse data (Cameron & Maslen, 2010), and provides a way to investigate the details of the subjective experience of word finding difficulties in aphasia (Tichborne, Liu & Bose, 2023). Systematically used metaphors structure much of our thought about abstract and complex domains (Lakoff & Johnson, 1980), through conventional metaphors which are so widely used to conceptualise a particular topic that their use is idiomatic and often not obviously metaphorical (e.g. 'I searched my brain for the word'), and through novel metaphors which provide new ways to approach a topic, and which usually strike us as more obviously metaphorical (e.g., 'the word wriggled out of my grasp'). The systematic metaphor used to describe a topic provides various 'mappings' between the structure of the 'source domain' and the 'target domain,' which form the basis of the metaphorical comparison and shape the way we reason about the target domain. Metaphors are well-suited to the investigation of metacognition in particular, as metaphors are used for reasoning in two ways: through 'problem-solving', and 'problem setting' (Schon, 1993). Problem-solving describes the use of a particular metaphor to structure reasoning, usually a conventional metaphor. Problem-setting, on the other hand, describes a strategy of considering alternative, often novel, metaphors which can be used to conceptualise the problem, through "attending to new features and relations of the phenomena, and in renaming,

regrouping, and reordering those features and relations" (Schon, 1993). Schon describes scenarios from product design and social planning in which the latter approach was effective in generating new strategies. We might expect a problem setting approach to be similarly effective for metacognition in aphasia, as people attend to new aspects of their subjective experience of their symptoms and integrate these with their understanding of language processing and recovery.

## The Current Study

Understanding how metaphors are used for metacognition by people with aphasia who have successfully recovered from and/or adapted to their symptoms can contribute useful insights to the wider project of exploring the potential therapeutic role metaphors may play in intervention for people with aphasia. Metaphor-led discourse analysis allows us to examine the metaphors used and the way in which they are used in autobiographical accounts. Two accounts were selected for analysis based on the authors' attribution of an important role in recovery to their engagement in metacognitive reasoning and their detailed descriptions of this process.

### Research questions

1) Which metaphors do Broussard (2016) and Schultz (2010) use for metacognition about word finding difficulties and recovery of this ability?
2) Are these metaphors used in a problem-solving or a problem-setting way for metacognition about word finding?

## Method

### Data Source

Two autobiographical accounts of aphasia were selected to explore the first-hand description of spontaneous use of metacognition in recovery of word finding abilities. These were *Stroke Diary II* (Broussard, 2016) and *Crossing the Void* (Schultz, 2010). These books were selected from a set of 12 autobiographical accounts of aphasia (Tichborne et al., 2023) as the authors described metacognition as playing an important role in their understanding and recovery of word finding. Below is a brief description of the biographical details of the author and their overall aphasic symptoms as described by the authors, as well as an overview of the role they describe metacognition as playing in their recovery.

#### ***Crossing the Void (Schultz, 2010)***

Carol Cline Schultz experienced a fluent aphasia, with some receptive difficulties, following an ischaemic left posterior middle cerebral artery stroke at the age of 53. She describes engaging in metacognition throughout her recovery. She evaluates her difficulties and abilities: “my head slowly and deliberately thinks out my condition” (p.3). She describes metacognition as fruitful, in leading to insights and strategies “all coalesces into a strategy to compensate for my aphasia” (p.152). She also describes her awareness of hard-to-categorise experiences as an important source of new insights and a prompt for metacognitive reasoning: “There is something else. It does not show itself to me in a bold declaration but hints faintly as an echo of words past that this other quality in my brain can possibly help me produce words” (p.142).

### *Stroke Diary II (Broussard, 2016)*

Broussard, formerly a naval engineer and then in workforce development, had an ischaemic stroke at around 60 years old, leading to a fluent aphasia, with some initial lack of insight into his difficulties. Broussard reports engaging in metacognition from early in recovery. He describes evaluating his impaired and preserved cognitive and linguistic abilities: “my thinking led me to discovering the deficits of each of my modalities” (p.24). He also attributes a causal role in recovery to this engagement in metacognition: “Awareness continued to be a key to recovery” (p.45); “half the battle would be done by thinking about the problems” (p.66). He also notes the importance of attending to new experiences as a source of metacognitive insight: “A person with aphasia learns from experiences on the inside.” (p.136); “My brain was thinking what it would take to get better while keeping track of my experiences.” (p.84). Broussard explicitly describes his use of metaphor for metacognition: “The metaphors rattling around in my head gave me a sense of how my mind was working.” (p.72). He considers both metacognition and the use of metaphor to be important aspects of his own recovery, and to have wider implications for other people with aphasia: “A metaphor can provide a therapeutic explanation without your being consciously aware of that effect.” (p.72), or more simply: “Metaphor is Therapy” (p.71).

### Metaphor identification, coding and analysis

Metaphors describing language processing in these two accounts had already been identified and coded as described in Chapter 3, and systematic metaphors for word finding and production, described as reported in Chapter 4.

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## Interpretation of Metaphors describing Metacognition

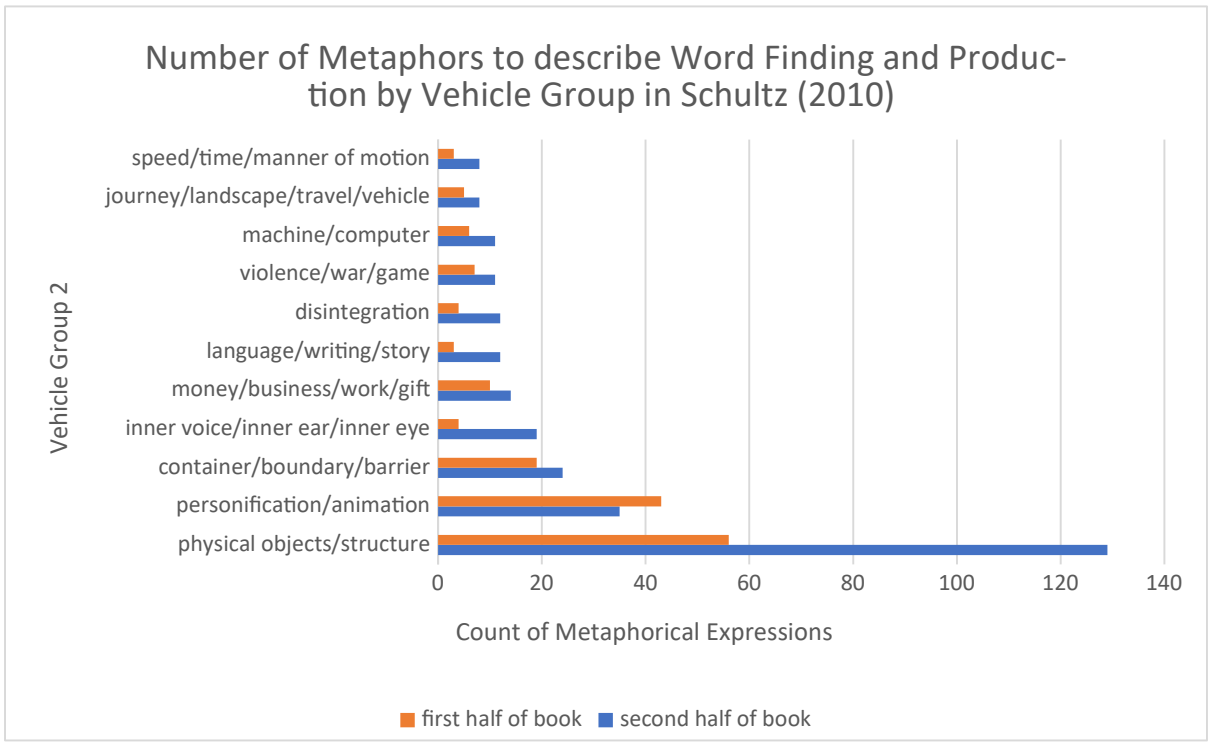
The metaphors used to describe and report metacognition about word finding difficulties by Schultz and Broussard were interpreted with reference to the results of Chapter 4, and the metacognition literature. Concepts from Conceptual Metaphor Theory about use of metaphor for reasoning are also drawn on in considering the discourse function of the different metaphors used by the two authors.

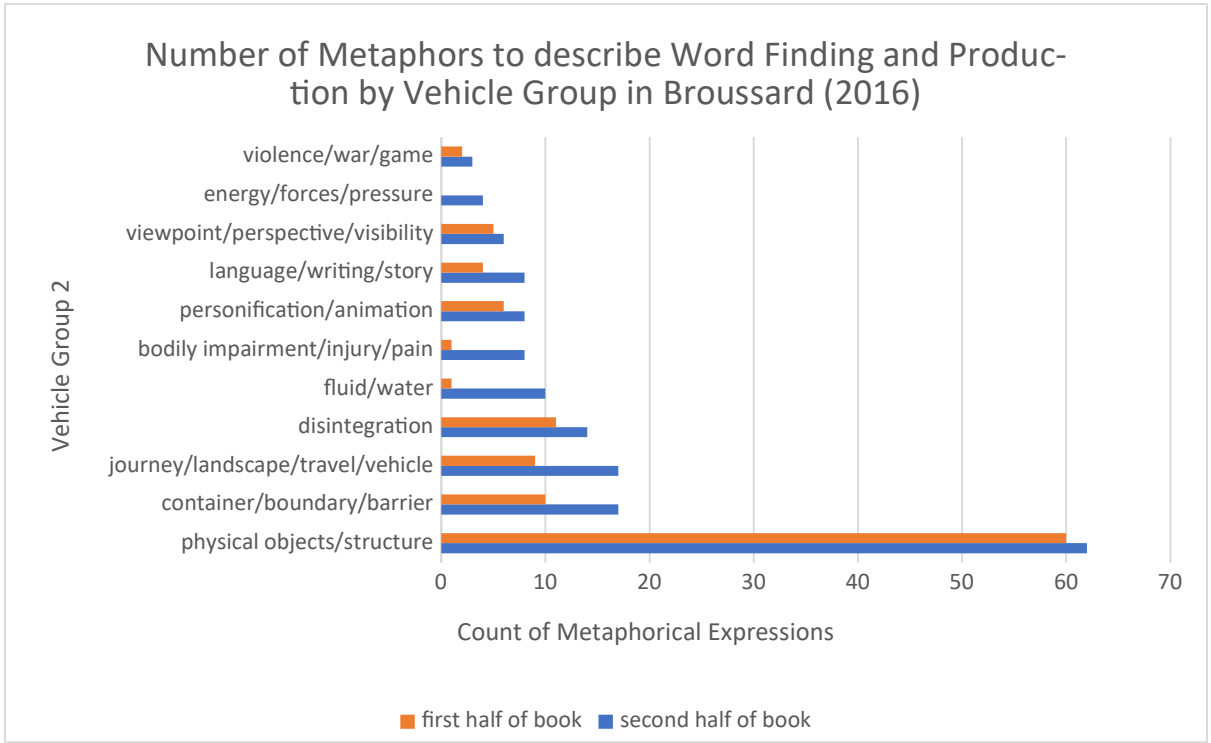
## Results and Discussion

For each account an initial overview of the role of metacognition in recovery is presented, followed by description and discussion of which metaphors are used to describe metacognition about word finding difficulties and its recovery, and whether the approach taken is a problem-solving approach of reasoning deductively using the mappings available in one metaphor, or a problem-setting approach of comparing the mappings available in multiple alternative metaphors.

**Figure 13**

*Metaphors used by Broussard and Schultz to describe Word Finding and Production Difficulties in the first and second halves of their accounts*



**Schultz' (2010) Crossing the Void**

Through her use of metacognition, Schultz reasons about the nature of her impairment, adopts an approach to recovery which she subsequently revises as she reconceptualises her impairment, reflects on her experience and discovers a successful internal compensatory strategy for word finding. This is initially an effortful strategy, but over time it becomes automatic and leads to successful recovery of word finding abilities: "my strategies work well enough that their many cognitive steps appear to come automatically." (p.183)

**Table 11**

*Schultz's (2010) use of the elaboration of the conventional metaphor WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER for metacognition about word finding difficulties and its recovery.*

| | **Metaphorical expression** *(vehicle words in italics)* | **Page #** |
|---|---|---|
| **WORDS AS LOST/STOLEN POSSESSIONS** | | |
| 11A | The second day - I do not *have my words back* | 28 |
| 11B | I don't *have enough words* to talk to them | 33 |
| 11C | to see if *I have any more words* than yesterday | 36 |
| 11D | that shows her *I certainly need words* | 54 |
| 11E | I am frustrated at *not having words* | 84 |
| 11F | I'm pretty proud of the words *I have acquired* in five weeks | 84 |
| 11G | I had a stroke. - *It took* my words | 100 |
| 11H | I assume I do not speak words simply because *I do not have words in my brain*. | 133 |
| **MIND/PART OF MIND AS EMPTY/MISSING CONTAINER** | | |
| 11I | The new words *drain through my mind as through a sieve* | 56 |
| 11J | After a stroke there is *an empty space in your head* | 169 |
| 11K | it feels like there's *a ball bouncing around inside your head looking for a landing spot* | 169 |
| **RECOVERY AS RETURNING OBJECTS TO A CONTAINER** | | |
| 11L | the words *get stuck between being out there and being in my head* | 13 |
| 11M | Words *do not find a landing spot*… the words keep trying *to go to the word place, but that spot is not accepting orders* | 15 |
| 11N | I *grasp at the words* as he talks to me… *I try to grab them* so I can use them later myself | 48 |
| 11O | I've *lost* it. The nurse is gone and the word *she gave me does not want to come back*. | 54 |
| 11P | I *watch for* words. *I try to capture them*. There are words *all around me*. Frank and Tim and visitors *throw out words…* most of the words *do not have a landing spot in the void* my stroke has created. | 64 |
| 11Q | It seems that if I can make words *stick in my head*… I ought to be able *to retrieve them* | 65 |

| | **Metaphorical expression** *(vehicle words in italics)* | **Page #** |
|---|---|---|
| | *and spit them out* at will… My brain has missed the rest of the statement, so *all the words are lost.* | |
| 11R | I *need more words than she gives me*. | 110 |
| 11S | I am frustrated because I know that Tim *has my word*… as if he were *hiding my toy and will not give it back to me.* | 152 |
| | **RECOVERY AS USING A DIFFERENT CONTAINER TO STORE OBJECTS** | |
| 11T | I miss *the word bank that saved words* for me… *What is left in my brain* that might do that for me? | 142 |
| 11U | Faintly *in my mind I am seeing* "m-e-a-l" and the visualization does not seem to match the sound food | 143 |
| 11V | My speech learning strategies are dependent on the printed words *stored in my mind*. From these printed images, I *retrieve* words. | 144 |
| 11W | So, *where did the learning go*?... It went to *the picture side, the printed page reading side of my brain.* That is *where* all the new speech learning *went to, and from there, it comes*. | 145 |
| 11X | Each word that *seems to come from nowhere comes from a painstaking search for printed words cached in my memory.* Once I *find* the letter pattern that represents the word I want, its phonics prompt speech | 161 |

Schultz uses the conventional metaphor WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER/THE BODY to reason about her word finding difficulties. This metaphor largely aligns with the coding categories 'physical objects/structure' and 'container/boundary/barrier' (see Figure 13). Schultz' problem-solving strategy of using the mappings available within this metaphor can be seen in Figure 13, in the increased number of metaphors using these vehicle groups in the second half of her account (alongside smaller increases in most of the other vehicle groups used). The other vehicle group which increases notable is that of 'inner voice/inner ear/inner eye' which reflects the particular strategy of visualised orthography which Schultz developed to facilitate her word finding.

The metaphor WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER/THE BODY is near-universally used in autobiographies about aphasia to describe the initial conceptualisation of acute aphasia (as seen in Chapter 4). This metaphor allows for two different emphases, through a focus either on WORDS AS LOST/STOLEN POSSESSIONS or on

the MIND/PART OF MIND AS EMPTY/MISSING CONTAINER. Schultz uses both of these with a particular initial emphasis on WORDS AS LOST/STOLEN POSSESSIONS, and her stroke as having 'taken' her words (Table 11, row G), leaving her with an 'empty' head (Table , row J). She uses this metaphor both to state her beliefs about her impairment (i.e., the structure of her metacognitive knowledge, e.g. Table 11, rows A, D-H and J), and to describe her real time experiences of word finding difficulties (i.e., her online awareness, e.g., Table 11, rows B, I and K).

With this metaphor Schultz describes early experiences of expecting her words to return, or to 'have' more words, as she had been told that her symptoms would be transient (Table 11, rows A and C). When her words do not return spontaneously, this metaphor also shapes her initial efforts to regain language. Based on her metacognitive self-knowledge and beliefs she conceptualises the task of relearning words as an attempt to catch and keep words that others use around her, that is RECOVERY AS RETURNING OBJECTS TO A CONTAINER (Table 11, rows N, P & Q). This attempted relearning strategy leads to frustrating experiences, as she is aware, through self-monitoring and self-evaluation, of her inability to successfully relearn a word through hearing it. This 'capturing' of words from the environment depends on receptive language and verbal working memory, both of which are also impaired (Table 11, row P). She also finds that words which she managed to 'catch' receptively are still not available for production (Table 11, row O).

Schultz does describe some progress in terms of regaining words (Table 11, row F). But repeatedly, and in multiple contexts, the conceptualisation of WORDS AS LOST/STOLEN POSSESSIONS in particular creates or reinforces resentment and frustration. When she is having difficulty with word-production in conversation, or in Speech and Language Therapy,

she feels as if her interlocutors are withholding from her the words which she needs (Table 11 row D, R and S). She describes unhappiness and irritation at experiencing the lack of an important resource which other people have in abundance. She feels dissatisfied and disempowered by Speech and Language Therapy sessions which do not restore words (Table 11, row 3R), and infantilised in social and family situations by others 'withholding' words (Table 11, row S). Overall, this initial conceptualisation of word finding difficulties leads her to use ineffective strategies and exacerbates the emotional impact and frustration she is experiencing with therapy and recovery.

In response to the lack of success and the emotional frustration which this initial strategy leads to, Schultz reconsiders her conceptualisation of her impairment and recovery. To do so she takes a problem-solving approach. While she does restructure her metacognitive knowledge about word finding and her impairment, she does not do this through rejecting the conventional metaphor which she initially made use of. Rather, she reasons inferentially, using the mappings which are already available within the WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER/THE BODY metaphor. In doing so she reflects on her online experience of self-evaluation, through which she is aware of repeated failure to understand and retain words, which she has described multiple times as being like an object which cannot find a 'landing spot' (e.g. Table 11, rows M and P). Reflecting on this aspect of her experience, within the mappings of the conventional metaphor, leads her to the idea that the problem may not be with the 'objects,' but with the 'container', adopting the new belief, still consistent with the original conventional metaphor, of RECOVERY AS USING A DIFFERENT CONTAINER TO STORE OBJECTS. That is, her conceptualisation of the problem as inhering in independently existing words and thus having its solution in the environment is rejected in favour of a new conceptualisation of the

problem as being one of damage to her own mental processes. This newly restructured metacognitive knowledge gives her motivation and a new approach to the re-evaluation of her strengths, to consider whether there is 'another place' where words can be stored and retrieved, i.e. whether an internal compensatory strategy is available to her (Table 11, row T).

Having reconceptualised her problem using this metaphor, she finds that she already has a possible answer (i.e., problem solving), based on another type of experience with language which she had previously noted. She has already described visualisation of the written word as helping her to process language (Table 11, row U), and recognises upon reflection that this preserved ability may provide her with an alternative way to retrieve and maintain the phonology of a word for production, as another 'place' in her brain (Table 11, rows V and W). As she attends to this ability through online awareness, she finds that it can be used to support successful online word-production: "Thinking does not cause my mouth to spurt out the word. Then somehow my mind is seeing "p-e-t-a-l-s". That is it. They are petals. The spelling comes to my head first to find the word. With the spelled image of the letters "p-e-t-a-l-s" in my head, my mouth is able to enunciate the sounds of the word." (p.143). Subsequent to this discovery she continues to use this internal strategy. The process is initially effortful and occurs in stages (Table 11, row X), but eventually this becomes automatic and unconscious (and can once again be described using more idiomatic language): "I did not have to think up or practice in my mind the words I was going to say. They just came out on their own." (p.167).

To summarise, Schultz applied a problem-solving approach to her word-production difficulty using the conventional metaphor WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER/THE BODY in a way that lead to a successful recovery of language ability. In

psycholinguistic terms, Schultz describes compensating for an impairment of the 'phonological loop' aspect of working memory, which affects her ability not only to maintain but to activate words, through consciously making use of her preserved 'visuospatial sketch pad,' (the other component of working memory) to consciously attend to phonological information. This allows her to effortfully retrieve words which were otherwise inaccessible, and over time this online internal strategy becomes automatic and unconscious.

**Broussard's (2016) *Stroke Diary***

Broussard, like Schultz, initially applies the conventional metaphor WORD-PRODUCTION AS MOVING OBJECTS OUT OF A CONTAINER/THE BODY to understand his word finding difficulties. He too soon finds this metaphor inadequate to fully conceptualise important aspects of his experience as he reflects on the nature of his difficulties. However, he then takes a problem-setting approach, in which he then generates and compares a number of different metaphors which allow alternative conceptualisations of his aphasia. Figure 13 shows this difference in approach. A similar absolute number of metaphors making use of the vehicle group 'physical objects/structure' is seen across the two halves of the book. While this remains the predominant metaphor, as it is used in most idiomatic descriptions of word finding and production, it is clear that there are much larger relative increases in the use of a number of other, novel, metaphors, as reflected most notably in the increase in vehicle groups 'journey/landscape/travel/vehicle', 'fluid/water', 'bodily impairment/injury/pain' and 'energy/forces/pressure'.

**Table 12**

*Broussard's (2016) use of multiple metaphors for metacognition about word finding difficulties and its recovery.*

| **Metaphorical expression** *(vehicle words in italics)* | | **Page #** |
|---|---|---|
| **WORDS AS LOST/STOLEN POSSESSIONS** | | |
| 12A | I imagined that my lost cells must have *taken whole words with them*. Given the 2% number of the 100 billion neurons, I assumed that *I had lost* 2% of my vocabulary. | 62 |
| 12B | I could tell many words were *bent or scratched in one way or another.* Yet, no words were *lost forever.* | 63 |
| **MIND AS COMPUTER/WORDS AS FILES** | | |
| 12C | I realized that individual, discrete words were not contained in *folders or files*. I thought the *files in the brain were organized similarly to a computer.* It wasn't the case. Once I knew that words were not kept *in a file*, I looked for a new explanation. | 63 |
| 12D | I thought individual "letters" weren't put into *files* either. | 64 |
| 12E | Each letter was *redundant* at the cell-*network level.* | 69 |
| **WORD AS COMPOSITE OBJECTS and WORD FINDING AS SOLIDIFICATION** | | |
| 12F | My personal theory of "*parts of parts*" came from my work in shipbuilding…The letters themselves were not all right or all wrong. There seemed to be *some mechanism that contributed smaller parts to bigger parts* to letters. It felt like *some of the smaller parts were damaged*. | 64 |
| 12G | What alphapet or words setting out in the brain a seeing *"parts"* of the words the last *parts not notwithstanding of an whole part, parts and words.* [contemporaneous journal entry] | 65 |
| 12H | Think of it as *"alphabet soup." In that bowl*, hundreds (if not thousands) of every letter (or every cell-letter network) *were floating there*. When words or sentences were formed they used letters consisting of networked, cell-letter networks. They were then *dredged up from the pot to join whatever larger entities* were needed. With aphasia, there is *"No soup for you!"* | 65 |
| 12I | Some networks were probably disbanded as a result of falling below some required "*critical mass*" for acquiring letters and words… It seemed *falling below the critical mass* still didn't mean it was *"gone" as much as it was faded*. I tried to say things (and sometimes came close) that had a *"fading"* quality to them. | 65 |
| **WORD PRODUCTION AS A JOURNEY/HUNT (MIND AS LANDSCAPE)** | | |
| 12J | I couldn't say the word "skyscraper." Even though I couldn't articulate the word, there were some parts of it (windows, bricks, lights) I could say. I got the feeling that *the details were closer in my mind than the building itself.* As I thought about the concept of being *closer versus being farther away,* it appeared to be easier (I could say the word "bricks"), rather than something more complicated (like a skyscraper). That's the way it felt to me. | 120 |
| 12K | When I couldn't find a word, it felt like *a bridge leading to the word had been burned*. *I couldn't see the word on the other side of the river,* so to speak. *I couldn't cross. I could get there (eventually) by looking for other (less complicated) bridges.* I could say other words, like "tall" and "building," but not "skyscraper." *Skyscraper was a bridge too far… Some bridges were still too complicated to find my way back to my vocabulary. So I walked upriver looking for the headwaters of that particular stream of thought. Somehow the repetition of the target word (and other related words) all seemed to contribute to an easier path downstream.* | 121 |

| | **Metaphorical expression** *(vehicle words in italics)* | **Page #** |
|---|---|---|
| **WORD FINDING EFFORT AS ENERGY/PRESSURE** | | |
| 12L | I could feel the *(real) tension* in my mind of not being able to say the word, and I used (as fast as I could) an easy word that meant (in my mind) what I intended it to be. | 82 |
| 12M | I could feel *the pressure* of the effort (of thinking) that went into formulating (preparing, priming, grooming) the construction of that word. | 121 |
| 12N | Using a *Gamma Knife* metaphor, the metaphor therapy *"lenses" the therapeutic energy (radiation) towards a certain (metaphorically speaking) target.* | 73 |
| 12O | *Photosynthesis* was a miracle metaphor! The process converts *thinking (it might as well be sunlight) into chemical and electrical energy*… As soon as I read about plasticity, I realized photosynthesis is a similar process. | 75 |
| 12P | The transition from conventional speech therapy to enriched speech therapy requires more *therapeutic energy.* | |
| **APHASIA AS BODILY IMPAIRMENT/ REHABILITATION AS EXERCISE** | | |
| 12Q | Solving mental problems is, in its own way, equivalent to *running a mile or lifting weights*. It is like *building mental muscles*. | 66 |
| 12R | The brain needs to *exercise* every day. | 138 |
| 12S | The mission of speech therapists is to help people with aphasia understand the overarching context of recovery: it is *a marathon, not a sprint.* | 139 |

Initially Broussard describes reflecting on and updating his metacognitive knowledge, based on the information he is given by medical professionals about his stroke and his previous knowledge of mathematics and engineering. He reasons that for each neuron which was lost, a corresponding word has been lost (Table 12, row A). However, after reflection on his online awareness of word-finding, he realises that this conceptualisation does not accurately map his experiences. He reasons that as he is able, with effort and cueing, to activate a word, despite initial difficulty, the word must still 'exist' 'in' his brain, but is somehow damaged (Table 12, row B). He also describes this realisation, using a conventional metaphor for cognition of MIND AS COMPUTER/WORDS AS FILES, as an initial belief that 'individual, discrete' words were contained in files, with an awareness that this did not fully describe his experience meaning that 'a new explanation' was required (Table 12, rows C-E).

This rejection of the initial structure of his metacognitive knowledge leads Broussard to consider a number of alternative metaphorical conceptualisations for his word-production difficulties. In a passage containing multiple extended metaphors, he explores various ways

to conceptualise WORD AS COMPOSITE OBJECTS and WORD FINDING AS SOLIDIFICATION (Table 12, rows F-I) . He draws on his previous experience as a naval engineer to consider the assembly of particular units from smaller units, and applies this reasoning to not only the level of word representations, but their constituent phonemes (Table 12 ,row F). This is grounded in reflection on his online experience; he says that it "felt like some of the smaller parts were damaged." Similarly, he describes partial retrieval, or the failure to maintain a retrieval in working memory as an experience of words as having a 'fading quality' which he elaborates using a metaphor from physics of a 'critical mass' to capture the idea of a non-linear selection threshold (Table 12, row I). A less scientific metaphor is also used to represent this experience: the 'dredging up' of letters from alphabet soup is a vivid representation of slow, and potentially erroneous, retrieval of the phonemes needed to make a word (Table 12, row H).

Broussard also uses the metaphor WORD-PRODUCTION AS A JOURNEY repeatedly throughout his account (Table 12, rows J and K). This metaphor also allows another metaphorical structure for the mapping of partial or effortful retrieval, and additionally provides a way to describe the changes of intact language processing to impaired language processing, and of neuroplasticity and recovery with practice. The metaphor of a damaged path is used to describe his engagement in rehabilitation, and development of strategies for recovery. Broussard frequently uses a specific version of this last metaphor of damaged or missing 'bridges' to describe the experience of impaired word-production. With this metaphor he is able to conceptualise semantic self-cuing and circumlocution as looking for alternative routes through the landscape (Table 12, row K).

Two further metaphors are used to describe neuroplasticity, and in particular the role of effort in rehabilitation. APHASIA AS BODILY IMPAIRMENT/ REHABILITATION AS EXERCISE

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2237 provides a way to describe the effortful nature of rehabilitation as something positive that
2238 leads to improvement (Table 12, row Q), the importance of regular repeated training (Table
2239 12, row R), and the benefits of a coaching style rather than a didactic attitude from Speech
2240 and Language Therapists (Table 12, row S). Similarly, WORD FINDING EFFORT AS
2241 ENERGY/PRESSURE is initially used to describe online awareness of a potentially unpleasant
2242 experience of effortful and not always successful attempts at word-finding (Table 12, rows L
2243 and M), and that the desire to quickly resolve that state could lead to use of a 'filler word'
2244 which was not communicatively successful (Table 12, row L). However, these online
2245 experiences influence metaphors which Broussard later uses to explain the benefits of
2246 intensive and self-directed rehabilitation, in terms of energy leading to precise neurological
2247 changes with a metaphor of radiotherapy (Table 12, row N), of energy leading to growth in
2248 the natural world (Table 12, row O), and of energy as a positive resource for engagement in
2249 therapy (Table 12, row P).

2250 The range of different metaphors which Broussard uses to describe his online
2251 experience of, and the structure of his metacognitive knowledge about, word finding, show
2252 the beneficial effect of the problem-setting approach which he takes.

2253

2254 **Conclusion**

2255 The two accounts considered show that metaphors provide a useful way to examine the
2256 complex interaction of the components of metacognition. They describe alternative ways to
2257 structure metacognitive knowledge, which can be activated in online awareness; where
2258 there are unexpected outcomes in online awareness as a result of self-monitoring and self-
2259 evaluation, metacognitive knowledge may be updated or restructured in turn. This can be
2260 done through problem-solving within the existing metaphorical conceptualisation of the

difficulty, or through a problem-setting comparison of alternative ways to conceptualise it. Schultz describes the former approach, using the conventional metaphor of WORD PRODUCTION AS MOVING AN OBJECT OUT OF A CONTAINER, but altering her application of this metaphor from an initial approach of RECOVERY AS RETURNING OBJECTS TO A CONTAINER to the more fruitful RECOVERY AS USING A DIFFERENT CONTAINER TO STORE OBJECTS. Broussard describes the latter, comparing various alternative metaphors, including MIND AS COMPUTER/WORDS AS FILES, WORD AS COMPOSITE OBJECTS and WORD FINDING AS SOLIDIFICATION, WORD PRODUCTION AS A JOURNEY/HUNT (MIND AS LANDSCAPE), WORD FINDING EFFORT AS ENERGY/PRESSURE and APHASIA AS BODILY IMPAIRMENT/ REHABILITATION AS EXERCISE. These two accounts were selected due to the fact that the authors attribute an important role in their recovery to their engagement in metacognition, so the results of this study do not show that these approaches are always beneficial. However, the findings do demonstrate that a wide range of metaphors, and differing approaches to the use of metaphor for metacognition, can play a positive role in recovery.

The strategy which Schultz develops is a sophisticated one, which has been reported elsewhere in the literature, primarily as a similarly self-discovered technique which a person with aphasia has independently developed as an internal compensatory strategy. The profile of impaired, preserved and recovered abilities for which this particular strategy can be so effective may be narrow, and includes aspects of language processing which are not routinely assessed. This shows the value of attention to the subjective experience of symptoms, and to the metaphors used to describe them, as these subjectively salient aspects of Schultz' aphasia led her to the development of an effective strategy.

Broussard likewise forms a detailed and technical understanding of his language impairment, including various aspects of word finding which may not always be considered relevant information to include in patient education, but which Broussard describes as shaping his approach to his effective program of self-directed recovery. A key realisation which he notes is that his word finding is not a problem of destroyed representations but of difficulty with retrieval, that is, of 'access not representation.' This leads to his related understanding of various aspects of neuroplasticity. This understanding is partly informed by reading, but the relevant material is initially inaccessible, and so reflection on his own experience provides the main source of insight.

These findings suggest that clinical communication and rapport building, as well as more accurate diagnosis and personalisation of intervention, could be supported through greater attention to the subjective experience of symptoms. The successful use of metaphor to reason about impairment and recovery further suggests that using metaphor as a tool to discuss subjective symptoms may enable clinicians to support metacognition as an important component of recovery.

# Chapter 7. Conclusion

This research made use of the rich but largely untapped source of data available in autobiographical accounts of aphasia. To analyse this large quantity of data in a systematic way, which can capture both the heterogeneity and the points of similarity across accounts, metaphor-led discourse analysis was used (following Cameron & Maslen, 2010).

The analysis of twelve autobiographies written by people with aphasia showed that the metaphors used to describe subjective symptoms do align with fine-grained cognitive-linguistic models of language. Importantly, the salient symptoms which are described in these accounts are better captured by some models of language processing than others, thus demonstrating that this approach can contribute important constraining data to our understanding of language in the brain. Symptoms which were identified as particularly subjectively salient, and as having an important impact on recovery, cognition and motivation, included a loss of inner speech and relatedly, difficulties with self-monitoring. These aspects of language processing are difficult to observe or even to measure behaviourally. This supports the suggestion that attention to subjective accounts may provide important information which is otherwise neglected.

Inner speech was explored in greater depth through an analysis of descriptions of inner speech in four accounts, selected for their relevance to this research aim. This analysis showed the potential of this methodological approach to contribute theoretically as two distinct concepts of inner speech were described using different systematic metaphors, and a double dissociation of these two different types of inner speech could be seen across accounts. The distinction between phonological inner speech and dialogic inner speech has

previously been made in the inner speech literature, but other distinctions have also been proposed, and the two concepts are also not always clearly defined and distinguished.

The research also showed that the authors reported using metaphors for metacognition. This suggests that attention to the use in discourse of metaphors by people with aphasia may play a role in supporting metacognitive reasoning, a topic which is receiving increasing attention in aphasia (Wadams et al., 2022).

To summarise, this research has demonstrated that the use of metaphor to analyse subjective accounts of aphasic symptoms can contribute to selection of language models. Sensitivity to subjective descriptions may also help to the identify and target on clinically relevant symptoms, such as the presence or absence of inner speech. Finally, metaphors can be used by people with aphasia to take a problem-solving approach to their symptoms, which may play an important role in new aphasia therapies.

**Limitations and Future Research**

Limitations arise from the use of publications which have been produced outside a controlled research setting (as detailed in Chapters 3 and 4). Additionally, the accounts do not describe typical cases of aphasia, as in order for them to have been produced, significant linguistic and cognitive resources must be available. To address these limitations further research is needed in order to test the hypotheses which have been generated by this research (see Chapter 4, Table 8).

This research could first be extended to describe other aspects and modalities of language processing making use of the existing dataset (for example, receptive language, reading and writing). A mixed-methods case series could establish the validity of the

approach through the collection of objective behavioural assessment of language and cognition of participants with aphasia, alongside the administration of a semi-structured interview about their subjective experience of their symptoms. Following these steps, the practical application of metaphor in assessment and intervention could be explored, perhaps through the use of an accessible visual and verbal 'metaphor menu' of symptoms (Semino, 2019). Expansion of the research to incorporate a greater number and types of autobiographical accounts would also be useful, in allowing for comparison across a wider range of experiences. A larger dataset would allow for the exploration of subjective differences across different aetiologies, such as a comparison of stroke and traumatic brain injury (as Chapter 4 reports that 'sleepy' ideas were only described by the single account of traumatic brain injury included in the analysis), or of cancer and brain surgery. Rapid further increases in the number and type of autobiographical accounts is anticipated, in particular from people with significant remaining language symptoms (as described in Chapter 2). Analysis of this new data source as it appears will ensure that the insights which people with aphasia wish to share about their symptoms, strategies and recovery can be 'taken seriously' through being treated as a useful source of data on complex issues, and can be integrated through rigorous methodologies into theoretical work on aphasia and language processing.

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