

Dementia, interaction, and bilingualism: An exploratory case study

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Introduction¹

The unique capability of human beings to communicate through the use of natural language is a skill that is normally developed in the first few years of life and then refined and maintained throughout the lifespan. In certain language areas, though, some deterioration in linguistic skills is evident in normal aging. This typically affects lexical retrieval and comprehension of complex structures (Goral, 2013). A variety of brain diseases commonly associated with advancing age may however impact even more negatively on the individual's language and/or communication skills. Among these are illnesses that may cause dementia in some form, the most common one being Alzheimer's disease (Mandell & Green, 2014).

Dementia refers to a set of symptoms in different cognitive and linguistic domains, and characteristically, these symptoms are persistent and progressive, causing a deterioration of skills and knowledge. The domains affected are memory, executive functions, language, visual-spatial processing, personality and general behavior and interaction skills (Mandell & Green, 2014). In Norway, an estimated number of 70,000 individuals have a form of dementia (Strand et al., 2014), and the number is expected to increase in the years to come with the general rise of elderly individuals in the population.

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A group of speakers that is especially vulnerable and underrepresented in research, nationally as well as internationally, is elderly, multilingual persons with dementia. Studies on ageing multilingual persons with dementia show mixed results. In some cases the first language is better preserved (Mendez, Perryman, Pontón, & Cummings, 1999), in other cases this is the most impaired language (Gollan, Salmon, Montoiya, & da Pena, 2010), and in yet other cases the impairments are relatively comparable across the languages (Hernández, Costa, Sebastián-Gallés, Juncadella, & Ramón, 2007).

Very few studies have been published on linguistic aspects of persons with dementia speaking Norwegian (e.g., Lind, Moen, & Simonsen, 2007; Moen, Simonsen, Øksengård, & Engedal, 2004; Simonsen, Moen, Øksengård, & Engedal, 2004), and so far none where the participants are multilingual. The present study is thus a first contribution to this underexplored field in Norway. We present an exploratory, clinical linguistic case study of a bilingual speaker diagnosed with probable dementia of the Alzheimer type in two conversational contexts, speaking his L1 (English) and his L2 (Norwegian), respectively. Our main goal is to explore his speech production in these two contexts, especially in cases where he displays problems of achieving progressivity of talk and seems to search for ways of continuing the turn at talk. We will contrast two types of progressivity problems that seem indicative of different underlying speech production problems, one affecting only the retrieval of a single lexical item and the other affecting the whole sentence structure. These will also be discussed in relation to the strategies available to his interlocutor in order to scaffold his contributions and assist in the search for linguistic material.

Theoretical background

Individuals with dementia of the Alzheimer's type often experience word retrieval problems (anomia), and typically, as the illness progresses, their speech production is increasingly characterized by empty phrases, speech automatisms, and semantic paraphasias. Maintaining discourse coherence and comprehending complex discourse also gradually become more problematic. Naturally, these difficulties, alongside other cognitive impairments associated with dementia, lead to difficulties with participation in social interactions, including conversations. As the language and communication problems in dementia are progressive, in later stages of the disease, the speaker may become virtually mute. However, in the earlier stages of the disease, the speaker will be able to take part in conversations, although not always in the same

ways as before the onset of dementia (Müller, 2010; Reilly, Troche, & Grossman, 2014).

Participating in conversation requires a whole range of skills and competences, some related to intra-individual processes, typically described with psycholinguistic models, and some related to inter-individual processes, better described in terms of sociolinguistic, interactional models. It is beyond the scope of the present article to give an account of the total set of mechanisms involved in successful conversational participation, but we will give a brief introduction to some key elements relevant to our subsequent empirical analysis which is primarily framed within a sociolinguistic, interactional perspective.

The fundamental building blocks of conversation are turns (Sacks, Schegloff, & Jefferson, 1974). A turn at talk is a period in the conversation during which a given participant has the right, but also the obligation, to present a contribution to his or her co-participant(s) that is relevant in form as well as in content at the specific point in the interaction. In the capacity as speakers participants must thus meet both a demand for progressivity and an imperative to fill the temporal space with a relevant action (Lerner, 1996). Each turn is filled with one or more turn-constructional units which can consist of linguistic material of different types, from single words and short phrases to longer utterances in the form of sentences, possibly also with coordinated and/or embedded clauses, and which are used to perform contextually relevant actions (Schegloff, 2007).

Focusing on multiword utterances, we can note that these typically express (more or less explicitly) a proposition, here understood as an expression of the relation between a predicate (typically a verb) and its arguments. To produce such an utterance in a normal, effortless manner, the speaker must manage to retrieve the appropriate lexical items from the mental lexicon and integrate them in an adequate grammatical structure that can be articulated. Even though all the words have a function in the utterance, the most crucial role is filled by the lexical verb, as so much of the semantic and syntactic structure of the utterance – hence also the interpretation of the utterance – depends on the choice of the lexical verb. Without lexical verbs, utterance interpretation is very challenging, even in context (Simonsen & Lind, 2002). As mentioned, anomia is a typical symptom in dementia of the Alzheimer's type. To be able to retrieve the intended lexical item – the one fitting best with the intended concept – and integrate it in an appropriate grammatical and discursive structure within a few milliseconds, requires a fairly high level of cognitive capacity. When this capacity is overloaded or reduced, word-finding

difficulties are manifested as a lack of progressivity of the talk. These types of word-finding problems and the ways they can be solved are well known also from other types of acquired neurological language impairments (Laine & Martin, 2006). For instance, in a Norwegian context, the use of semantically empty nouns as substitutes or fillers in the oral speech production of speakers with aphasia has been explored by Lind, Moen, and Simonsen (2008) (cf. below on strategies used to compensate for lexical gaps).

A typical manifestation of anomia is word search sequences (Goodwin & Goodwin, 1986). Such sequences occur when an utterance is interrupted before its projected completion, and the speaker displays problems continuing the turn by producing hesitation markers (“uh”), sound stretches, pauses, and by setting up a so-called “thinking face”. Sometimes the search activity is also formulated verbally (“what’s it called?”). The activity of searching for a word may be performed individually by the speaker, but on some occasions it is turned into a collaborative effort. The speaker may include an invitation to the interlocutor to participate in the search, for instance by gazing at him or her, or by explicitly appealing for assistance (Goodwin & Goodwin, 1986; Laakso & Klippi, 1999). In doing so, the speaker may ask questions or give the interlocutor various cues to identify the referent, such as producing an iconic gesture, saying the word in a different language, or providing a description of the referent (Greer, 2013). Grammatical features of the utterance-in-progress, such as demonstratives or articles, may also give the interlocutor cues as to what sort of linguistic item is being searched for (Hayashi, 2003). Consequently, the interlocutor may provide suggestions, which are then accepted or rejected by the speaker and potentially included in the completion of the utterance.

When speakers do not succeed in retrieving a word, they may resort to other ways of conveying their intended meaning. Strategies used to compensate for lexical gaps were first described in the field of second language acquisition under the label *communication strategies* (Færch & Kasper, 1983; Tarone, 1980), but the concepts developed in this field have also proved to be useful for describing strategies used by speakers with various types of communicative impairments (cf. e.g., Lind, 2005; Perkins, 2007; Simmons-Mackie & Damico, 1997). Examples of such strategies are exemplifying or describing the properties of the target object or action (*circumlocution*) or using a superordinate or semantically related term (*approximation*). Another strategy of specific relevance to this study is using a general, semantically empty lexical item (such as “thing”) as a proxy for the missing term (Dörnyei & Scott, 1997).

Without the usual easy access to words and other lexical items, participation in conversation becomes challenging, not only for the speaker, but also for the interlocutor in the interaction. A key concept in interactional analyses is intersubjectivity, here understood as “publicly realized shared understandings” (Edwards, 1997: 100). Utterances produced as relevant contributions to the ongoing interaction, are the central units through which intentions are expressed and intersubjectivity achieved. Intersubjectivity is furthermore a phenomenon that is generally taken for granted, at least as a common goal, in interaction. However, in conversations where one or more of the participants have a language impairment, and possibly also a more general cognitive impairment, as in the case of dementia, intersubjectivity may not as easily be taken for granted or achieved.

Methods

Participants

The data for this study consist of audio-recorded conversations between a male bilingual speaker of American-English (L1) and Norwegian (L2), JJ, and a female researcher, HGS, whose native language is Norwegian, but who also speaks English fluently.² JJ is 68 years old and thus of the same generation as HGS, and they both hold higher academic degrees. Prior to the data collection, JJ and HGS were unacquainted. JJ is a sequential bilingual speaker, who learned Norwegian as an adult. In an autobiographical interview, he reports that he married a Swedish woman during his student days, but that they have always spoken English at home. They moved to Norway in the late 1970s for work reasons. He attended Norwegian courses, and in the 1980s he used Norwegian quite a bit at work. However, later he worked for a multinational company where he spoke mostly English. He also reports that since the onset of dementia, two or three years prior to the recordings, he has not been using Norwegian a lot. A limitation of our study is that we do not have any exact information about how well JJ spoke Norwegian prior to the onset of dementia. JJ took part in a pilot project on dementia and multilingualism conducted at MultiLing – Center for Multilingualism in Society across the Lifespan, University of Oslo, spring 2015. In this pilot project various types of data were collected to assess the impact of early stage dementia on language and communication in multilingual speakers. The data collected included re-

² A younger, female research assistant was also present during the conversations, but she did not participate actively beyond providing minimal responses. In the transcriptions she is labeled A.

sponses to formal cognitive and linguistic tests, as well as responses to a questionnaire on functional communication and recordings of more or less spontaneously produced speech (elicited narratives and conversation). In this article, we focus primarily on the conversational data, while using some of the other data as background data for the description of JJ.

Cognitive and communicative assessment

To assess his level of cognitive functioning, JJ was tested with *The Rowland Universal Dementia Assessment Scale* (RUDAS) (Storey, Rowland, Basic, Conforti, & Dickson, 2004) and a Flanker task (Eriksen & Eriksen, 1974), which measures both attention and inhibitory control.³ These tests were carried out once in JJ's native language, and the results show reduced scores both on the RUDAS (22/30)⁴ and on the Flanker task (23/40), indicating a slight cognitive impairment and deterioration of some executive functions.

JJ's ability to name objects and actions was assessed in a confrontation naming task which consisted of 30 drawings depicting objects, selected from the Norwegian version of *The Psycholinguistic Assessments of Language Processing in Aphasia* (PALPA) (Kay, Lesser, & Coltheart, 2009), and 30 drawings depicting actions, selected from the Norwegian version of *The Verb and Sentence Test* (Bastiaanse, Lind, Moen, & Simonsen, 2006). The aim of the task was to elicit single nouns and verbs. The same set of pictures was used for this task in both English and Norwegian. In his L1 (English), JJ was able to name almost all of the objects correctly (26/30), whereas he had more problems with naming the actions (18/30). In the L2 (Norwegian), however, the scores were much lower, both for nouns (10/30) and verbs (10/30). If we also consider the errors, we see a difference between nouns and verbs also in Norwegian. In the object naming task in Norwegian, his preferred strategy when failing to produce the correct noun in Norwegian was to code-switch to English and respond with the correct English equivalent of the target noun. This happened for ten of the twenty items for which he did not give correct responses in Norwegian. In the action naming task he did not produce translation equivalents, but rather resorted to semantically bleached, all-purpose verbs, such as "bruke" ('use') and "gå" ('go'), often in combination with a noun. Based on the confrontation naming task it seems that JJ has word-finding difficulties, more so in his L2, and more clearly for verbs than nouns. We may expect such difficulties to have a significant impact on his linguistic performance in conversations.

³ We used a version of the Flanker task with arrows instead of letters.

⁴ The cut-off score on the RUDAS is < 23 (Storey et al., 2004).

JJ's wife completed the Norwegian version of the *Communicative Effectiveness Index* (CETI) (Lomas et al., 2006). This is a questionnaire developed as a measure of the functional communication skills of a person with aphasia, but it can also be used with regard to speakers with dementia (Burgeois & Hickey, 2009). The CETI consists of 16 descriptions of situations, referring to different aspects of functional communication. A significant other, for instance the spouse of the person with the speech or language impairment, rates on a visual-analogue scale to what extent the person with the impairment is able to do whatever the relevant description refers to. The scale ranges from "not able at all" to "as able as before the stroke",⁵ and based on the ratings, a total score is calculated (the maximum score is 100). A maximum score would thus indicate that there are no perceived changes in the person's functional communication abilities at the time when the rating is conducted, compared to how he or she used to function before the onset of the speech or language impairment. It is important to remember that in the CETI, the person is compared to him-/herself rather than to a given norm. The focus is not primarily on the absolute score, but on the change in score over time (Lomas et al., 1989). A change in the total score of at least 12 points is regarded as clinically important (Lomas et al., 1989). We should bear in mind though, that the ratings given in the CETI are not self-reports; instead they reflect how another individual perceives the functional communication skills of the person with the speech or language impairment. How the person him-/herself perceives the situation may be a different story, and how he or she actually functions in interaction is yet another story.

When JJ's wife completed the CETI, the total score was 79.2. As the CETI has been completed only once for JJ, we have no directly comparable information on how he used to function in communication prior to the onset of dementia or at an earlier stage of the disease. However, a maximum score of 100 would have meant that there had been no change since the onset of dementia; thus, we interpret the score of 79.2 as indicating a clinically important change (a change by >12 point) in his functional communication skills.⁶ The items that received particularly low scores (55 or below), were items number 2 ("Getting involved in group conversations that are about him/her"), 4 ("Communicating his/her emotions"), and 14 ("Being part of a

⁵ In the Norwegian version of the CETI, the scale ranges from "ikke mulig" ('impossible') to "som før slaget/skaden" ('as before the stroke/damage').

⁶ When responding to the CETI questionnaire, JJ's wife was not instructed to evaluate his communication skills in just one of his languages exclusively, as the CETI is not linked to any specific language, but rather to functional, verbal communication in general. It is possible that the scores would have been different if she had been asked to evaluate his functional communication in his L1 separately from his L2 and vice versa.

conversation when it is fast and there are a number of people involved”). Also items number 6 (“Having coffee-time visits and conversations with friends and neighbors (around the bed or at home)”), 12 (“Starting a conversation with people who are not close family”), and 16 (“Describing or discussing something in depth”) were rated lower than the rest of the items (at 67). The results of the CETI thus indicate that cognitively and interactionally demanding speech contexts have become more problematic for JJ since the onset of dementia.

Data collection

The data were collected in both JJ’s languages with one week in between the sessions. The first session was conducted in English, and the second in Norwegian. As far as possible, we attempted to create monolingual conditions for the data collection in each of the languages in the sense that the test administrator (HGS) spoke only English in the English data collection session and only Norwegian in the Norwegian data collection session. Using the same test administrator could be problematic for creating a monolingual condition. However, it is a well-known fact that an overwhelming majority of the adult speakers in Norway (in particular those with a higher academic education) know a fair amount of English, so it is in general difficult to create a purely monolingual condition.

Before and in between the formal test sessions, there were sequences of more casual conversation. In English, JJ’s first language, an informal autobiographical interview was conducted, dealing with his life history and especially his use of different languages in various situations. Small talk in his second language, Norwegian, was gathered from talk surrounding the test taking. There was no pre-set topic for the small talk in Norwegian. The analysis of the interaction in JJ’s first language is based on the autobiographical interview, and the analysis of the interaction in his second language, is based on the small talk. Both the test sessions were audiotaped, but not videotaped, and the conversational data were transcribed in a detailed manner, using conversation analytic conventions (Jefferson, 2004) and including such elements as pauses, speech overlap, prosodic features, and intonation (for transcription key, see the appendix). Ideally, we would have preferred to have video recordings of the conversational data, so that we could have taken non-verbal actions into account in the analysis. However, for this pilot study such recordings were not feasible; hence, we base our analysis on what can be detected auditorily. The conversational sequences were analysed qualitatively, using a conversation analytic methodology (Sidnell, 2011).

Analysis

The point of departure for our analysis is an impression from repeated listening to the recordings that JJ had different and more serious problems in producing spontaneous speech in his L2, Norwegian, than in his L1, English. The problems in the English conversations seemed to be related to retrieving specific lexical items, whereas in the Norwegian conversations they seemed to be related more to an overall planning of the sentence structure. Below we will analyze some typical excerpts from the data material that illustrate this difference, and discuss whether they may be indicative of different types of language impairment. We will also show how the different manifestations of word searches give the interlocutor different opportunities to contribute to the utterance in production.

Interaction in English (JJ's L1)

In the English data, JJ frequently displays lexical retrieval problems by engaging in word search sequences (Goodwin & Goodwin, 1986). The excerpt in (1) includes several word searches. JJ is telling about his career path as an accountant (CPA) in an international corporation:

(1)

1 JJ E::r (1.0) then (1.0) e::r (3.0) () within the (.) partnership (0.5) e::r
 2 (2.5) e:r we had some (3.0) no-not [a- not agreement] really
 3 HGS [er (.) okay]
 4 HGS [yes yes]
 5 A [a-ha]
 6 JJ [And] so (.) e:r (.) and I was asked for the (.) by the (1.5) ehm (0.5) guy
 7 A [a-ha]
 8 JJ who's the head of the (.) European (1.0) thing
 9 HGS Mhm,
 10 JJ asked me to go (.) to er (2.0) (tsk) e:r (0.5) to to: (0.5) to Bangkok

In this excerpt there are several long pauses, but especially the three-second pause in line 2 seems to indicate a word-finding problem. Before the pause, JJ has produced a modifier (“some”), which projects an NP head. What he ends up saying, however, does not directly fulfill this projection, but instead consists of a negation plus a noun phrase (“not agreement”). The word search thus does not seem to result in the speaker finding the word sought for. Instead, this can be considered a strategy of approximation in that it presents an antonymic alternative to the word potentially searched for (‘disagreement’,

‘discord’ or the like). The interviewers claim understanding (“okay” and “yes yes”), and JJ continues his narrative.

Two other word searches can be observed in the next part of the extract. First, in line 6, JJ cuts off his utterance after a definite article, projecting a noun to follow (“I was asked for the (.) by the”). After two lengthy pauses and a filled pause (“ehm”), he produces a syntactically congruent continuation: “guy who’s the head of the European thing”. However, this does not seem to be the word or phrase searched for. It involves an explanation of meaning involving unspecific terms such as ‘guy’ and ‘head’ rather than a specific designation (such as for instance ‘manager’ or ‘CEO’). A new search occurs in the last part of this construction, where we get a new long pause after “European”. This adjective projects a forthcoming noun, and indeed a noun is actually produced in the end, but it is just an empty lexical item (“thing”). This item is not informative in itself, but seems to be a proxy for the target noun, and presupposes that the interlocutor can infer what the referent is from the context (in this case it might be something like ‘division’ or ‘subsidiary’). Thus, both these word searches are solved by resorting to communication strategies in which JJ substitutes a specific, low-frequency word with a general, high-frequency word.

Finally, we may note a fourth word search sequence in the extract, in line 10. Here the item searched for is syntactically projectable as the completion of the prepositional phrase initiated by the preposition “to”, and semantically as the destination of the motion expressed in the verb “go”. After several long pauses and hesitations, this word search ends in a successful retrieval when he finally produces the place name “Bangkok”.

The word search sequences illustrated here are individual, in that the speaker himself finds a solution to the problem. In other cases, the word search is turned into a collaborative effort, as exemplified in excerpt (2). JJ is still telling about a restructuring process in the company he was employed in:

(2)

- 1 JJ they wanted to get their (1.5) (tsk) they wanted to get (0.5) e:r
 2 (1.0) the it it (2.0) ((thump)) that everybody (1.0) was (0.5) on the
 3 same system (.) when it [comed]
 4 HGS [mm]
 5 JJ t- er came to er (.) e:r their (.) wh- you know when you (.) when you
 6 leave
 7 HGS Yeah okay [ye]ah
 8 A [mm]
 9 JJ A- and,
 10 HGS you- you mean er retirement,

11 JJ Re[tire] yeah
 12 A [mhm]
 13 HGS wise? yeah mhm
 14 JJ And (.) and it so happened (.) that

In line 1, JJ cuts off an utterance after a possessive pronoun (“their”), projecting a noun. He embarks on several attempts to reformulate the utterance in progress, and ends up once again with the possessive pronoun “their” in line 5 without being able to produce the projected noun. At this point, he appeals to the interlocutor’s inferencing abilities by the discourse marker “you know” (Schiffrin, 1987) and proceeds by producing a candidate explanation of what he is searching for: “when you leave”. The interlocutor orients to this appeal for participation by producing a claim of understanding: “yeah okay yeah” (line 7). This claim of understanding indicates that the referent has been identified in spite of the unsuccessful word search, and the speaker initiates a continuation of his narrative by the conjunction “and” in line 9. However, at this point, the interlocutor comes in with a (delayed) candidate suggestion of what the word might be (“you mean retirement”, line 10). This suggestion is confirmed by JJ in that he repeats (part of) the word and adds a confirmation (“retire yeah”, line 11). Thus, we see here that the word search becomes a collaborative activity and that the interlocutor assists in finding the word searched for (or a word close enough to be acceptable to the speaker). The previous context and explanation of meaning given by JJ allow the interlocutor to infer what is intended and to produce a candidate completion.

In the two excerpts presented so far, the main problem for JJ seems to be a (temporary) lack of access to a specific lexical item. In some cases, he seems to find the word (“Bangkok”), in others he resorts to circumlocution (“guy who’s the head of”, “when you leave”), approximation (“not agreement”), and in yet others he substitutes the word for a general proxy noun (“thing”). The fact that the utterance in progress has already created a context for the missing word, allows the interlocutor on some occasions to participate in the activity of searching (“retirement”). So all in all, even though these retrieval problems slow down the progressivity of the turn, they generally result in a solution that reestablishes intersubjectivity among the participants.

Interaction in Norwegian (JJ’s L2)

In the Norwegian data, we find production problems that go beyond this sort of trouble, and which result in more serious challenges to the establishment of intersubjectivity. Excerpt (3) is a typical example. JJ is talking about his

low test scores for Norwegian, and HGS explains this by the fact that he has been using English more than Norwegian in his lifetime:

(3)

- 1 HGS Ikke sant du har jo brukt engelsk
Right you have (PART) used English
- 2 JJ Ja
Yeah
- 3 HGS M- mye mer i livet også, og
M- much more in your life too, and
- 4 JJ Ja=
Yeah=
- 5 HGS =så er du jo- er du jo (1.0) født med det da.
=then you are (PART)- you are (PART) (1.0) born with it (PART).
- 6 JJ Ja=
Yeah
- 7 A =mm
- 8 HGS Ja [hhhh]
Yeah
- 9 JJ [ja]
yeah
- 10 HGS .hhja
yeah
- 11 JJ Jeg har altså vært ((KREMT)) (1.3) at (1.2) e:h (3.0) når jeg s-
I have (PART) been ((COUGH)) (1.3) that (1.2) e:h (3.0) when I s-
- 12 (sa) det var (.) problem,
(said) it was (.) problem,
- 13 A [Mhm]
- 14 HGS [Mhm]=
- 15 JJ =e:h (0.7) eller (sånn) (0.5) eh gikk (.) som f- f- funnet hva det
=e:h (0.7) or (like) (0.5) eh went (.) that f- f- found what it
- 16 JJ var [og så] videre .hh eh ((KREMT)) (1.0) (tsk) (1.0) o:g (2.0)
was and so on .hh eh ((COUGH)) (1.0) (tsk) (1.0) a:nd (2.0)
- 17 HGS [ja .hhja]
Yeah yeah
- 18 HGS [mm]
- 19 JJ det er ehm (0.7) (det er eh) (0.9) (hårdt) nok
It's ehm (0.7) (it's eh) (0.9) (hard) enough
- 20 HGS Mhm=
- 21 JJ =til å eh (.) bruke: en.
=to eh (.) use one.
- 22 A Mm=
- 23 JJ =heheheh
- 24 HGS hehhehhhh ja (nemlig) [ja]
hehhehhhh yeah (exactly) yeah

back any form of response (for instance in line 11 and 15). They produce minimal responses only when they recognize a potentially complete turn constructional unit, for instance the clausal units in lines 11–12: “Når jeg s- (sa) det var (.) problem” (‘when I s- (said) it was (.) problem’), and 15–16: “som f- f- funnet hva det var” (‘that f- f- found what it was’). These responses take the form of continuers, which display attentiveness and claim understanding, but which do not display what that understanding amounts to. In lines 24–25 the interviewers produce a somewhat more substantial response by laughing (although somewhat delayed, after he has finished laughing), which is an evaluative type of response, presupposing understanding of the “laughable” (Sacks, 1992). And HGS also claims understanding and acceptance by the use of an emphatic confirmation token: “ja (nemlig) ja” (‘yeah (exactly) yeah’) (line 24). However, neither of these responses display any candidate understanding of the prior talk. This contrasts with some studies of second language interaction showing that L1 speakers often produce understanding checks or (modified) repeats to display and check their understanding when L2 speakers perform highly unidiomatic or perturbed utterances (Svennevig, 2004). Thus, the speaker does not get any assistance in the process of formulating his utterances, and neither does he get direct evidence along the way or at the end whether he has been understood or not.

The searching activity observed in the extract above (and in many other instances in the Norwegian conversation) is different from the searching activity typically observed in the extracts from the English conversation. In the Norwegian conversation, the items searched for do not seem to be single lexical items, but something more complex and fundamental. The searches occur before the utterance has reached a point where it has a projectable, global syntactic structure. And when the search is unsuccessful and the utterance is restarted, often a completely different syntactic structure is initiated (for instance, in lines 11–12 “jeg har altså vært” (‘so I have been’) is replaced by “når jeg s- (sa) det var (.) problem” (‘when I s- (said) it was (.) problem’). Thus, rather than a “word search” in the classic sense, the search activity in the Norwegian conversation could more aptly be described as a “sentence construction search”.

Discussion

In this short, exploratory article we have analyzed some typical examples of the utterance production problems of a bilingual speaker diagnosed with

probable dementia of the Alzheimer type, in an L1 conversation and an L2 conversation, respectively. The data show that he has language-processing problems both in his L1 (English) and his L2 (Norwegian), which influence his utterance production abilities in interaction. This has a negative impact on the progressivity of his turns and also requires a more active, scaffolding role on the part of the interlocutor. The analysis of the conversational data thus accords with the perception of JJ's wife concerning his functional communication abilities after the onset of dementia, as reported in the CETI questionnaire.

As illustrated above, JJ's problems in English and Norwegian are not identical, though. In the English conversation his main problem seems to be accessing specific lexical items, often information-carrying, low frequency nouns that can fit into a given syntactic construction, which is often relatively clearly presented in the utterance. In this conversation he is also able to use various strategies, such as circumlocution, explanation of meaning, and use of semantically less informative proxy nouns, to remediate his word-finding problems. In the Norwegian conversation, on the other hand, the main problem seems to be related more to accessing and/or constructing the syntactic frame with which the information-carrying lexical items are integrated. In this conversation he seems less able to use remediating strategies. The ability to access lexical verbs is crucial for a subsequent construction of a meaningful utterance expressing a proposition. The more global, syntactically related problems with utterance production that we see in the Norwegian conversation, could be related to a comparably greater impairment of verbs (and/or access to verbs) in Norwegian than in English for JJ, as indicated also in the results on the confrontation naming task described above.

Furthermore, the different manifestations of the language problems in English and Norwegian have implications for which strategies his interlocutors can use to scaffold his contributions and assist in the search for lexical items. The interlocutors have a somewhat easier task in the English conversation than in the Norwegian conversation. The more fully developed grammatical structure of JJ's utterances and the more restricted topical context in the English conversation, limit the range of candidate formulations that the interlocutors can reasonably make, more than what is the case in the Norwegian conversation. The result is that the interlocutors are more active in assisting JJ in his production and in displaying their understanding in the English conversation. In the Norwegian conversation, the interviewers produce more minimal responses that do not display to the speaker (or to the analysts) whether or not they have actually understood what he is trying to say.

In JJ's case, based on the conversational data, his L1 seems less impaired by the dementia than his L2, as found for instance by Mendez and colleagues (1999). However, as mentioned in the introduction, the findings are mixed regarding the question of parallel or non-parallel impairment of the languages of bilingual speakers with dementia. Further research is obviously needed in this field. Care must be taken, though, to make sure that the cases we compare are really comparable. It is a well-known fact that the individual variation among speakers with language impairments is extensive, not only between speakers, but also on a day-to-day basis for each individual. Individual variation also applies to bilingual speakers, where factors such as the age, manner, and context of acquisition as well as the contexts and patterns of language use may vary widely for the different languages of one speaker, making comparison between different bilingual speakers hard (Grosjean, 2010). As mentioned, we also do not know exactly how well JJ spoke Norwegian, or how well his skills in remediating language problems were developed in Norwegian, prior to the onset of dementia. The conversations that we recorded with JJ in English and Norwegian also differed a little with respect to the topics covered. This may further have impacted on his performance.

Concluding remarks

With an expected growth in the number of elderly individuals in society in the decades to come, and with bi- or multilingualism being the norm rather than the exception, we will see an increase in the number of multilingual speakers with dementia, also in Norway. A better understanding of the impact of dementia, for the individual and his or her family, for health care personnel, and for society at large, warrants more research, also from a clinical linguistic perspective. A recently started research project at MultiLing (2016–2019), with Hanne Gram Simonsen as a core member of the project group, attempts to meet this challenge. We are looking forward to continuing the collaboration, Hanne!

References

- Bastiaanse, R., Lind, M., Moen, I., & Simonsen, H.G. (2006). *Verb- og setningstesten (VOST)*. Oslo: Novus.

- Burgeois, M.S., & Hickey, E.M. (2009). *Dementia. From diagnosis to management – a functional approach*. New York: Psychology Press.
- Dörnyei, Z., & Scott, M.L. (1997). Communication strategies in a second language: Definitions and taxonomies. *Language Learning*, 47, 173–210.
- Edwards, D. (1997). *Discourse and cognition*. London: SAGE Publications.
- Eriksen, B.A., & Eriksen, C.W. (1974). Effects of noise letters upon the identification of a target letter in a nonsearch task. *Perception & Psychophysics*, 16, 143–149.
- Færch, C., & Kasper, G. (1983). *Strategies in interlanguage communication*. Harlow, UK: Longman.
- Gollan, T.H., Salmon, D.P., Montoiya, R.I., & da Pena, E. (2010). Accessibility of the nondominant language in picture naming: A counterintuitive effect of dementia on bilingual language production. *Neuropsychologia*, 48, 1356–1366.
- Goodwin, M.H., & Goodwin, C. (1986). Gesture and coparticipation in the activity of searching for a word. *Semiotica*, 62, 51–75.
- Goral, M. (2013). Bilingualism, language, and ageing. In J. Altarriba & L. Isurin (Eds.), *Memory, language, and bilingualism. Theoretical and applied approaches* (pp. 188–210). Cambridge: Cambridge University Press.
- Greer, T. (2013). Word search sequences in bilingual interaction: Codeswitching and embodied orientation toward shifting participant constellations. *Journal of Pragmatics*, 57, 100–117.
- Grosjean, F. (2010). *Bilingualism. Life and reality*. Cambridge, MA: Harvard University Press.
- Hayashi, M. (2003). Language and the body as resources for collaborative action: A study of word searches in Japanese conversation. *Research on Language and Social Interaction*, 36, 109–141.
- Hernández, M., Costa, A., Sebastián-Gallés, N., Juncadella, M., & Ramón, R. (2007). The organisation of nouns and verbs in bilingual speakers: A case of bilingual grammatical category-specific deficit. *Journal of Neurolinguistics*, 20, 285–305.
- Jefferson, G. (2004). Glossary of transcript symbols with an introduction. In G.H. Lerner (Ed.), *Conversation Analysis: Studies from the first generation* (pp. 13–31). Amsterdam/Philadelphia: John Benjamins.
- Kay, J., Lesser, R., & Coltheart, M. (2009). *Psykolingvistisk kartlegging av språkprosessering hos afasirammede (PALPA) (Bredtvet kompetansesenter, Logopedtjenesten – Helse Bergen, Statped Vest, & Øverby kompetansesenter, adaptation)*. Oslo: Novus. (Original published 1992).

- Laakso, M., & Klippi, A. (1999). A closer look at the 'hint and guess' sequences in aphasic conversation. *Aphasiology*, *13*, 345–363.
- Laine, M., & Martin, N. (2006). *Anomia. Theoretical and clinical aspects*. Hove & New York: Psychology Press.
- Lerner, G.H. (1996). On the 'semi-permeable' character of grammatical units in conversation: Conditional entry into the turn space of another speaker. In E. Ochs, E.A. Schegloff, & S.A. Thompson (Eds.), *Interaction and grammar* (pp. 238–276). Cambridge: Cambridge University Press.
- Lind, M. (2005). Conversation – more than words. A Norwegian case study of the establishment of a contribution in aphasic interaction. *International Journal of Applied Linguistics*, *15*, 213–239.
- Lind, M., Moen, I., & Simonsen, H.G. (2007). Verbbøyning: Hva skjer når hjernen får en skade? Eksperimentell evidens fra afasirammede og Alzheimer-pasienter. *Norsk Lingvistisk Tidsskrift*, *25*, 3–28.
- Lind, M., Moen, I., & Simonsen, H.G. (2008). Syntactic frames and slot fillers in fluent aphasic speech production: Two Norwegian case studies. In J. Niemi & S. Werner (Eds.), *NorClinLing 2008. Proceedings from the 1st Nordic conference of clinical linguistics* (pp. 71–82). Joensuu: University of Joensuu.
- Lomas, J., Pickard, L., Bester, S., Erlbard, H., Finlayson, A., & Zoghaib, C. (1989). Communicative Effectiveness Index: Development and psychometric evaluation of a functional communication measure for adult aphasia. *Journal of Speech and Hearing Disorders*, *54*, 113–124.
- Lomas, J., Pickard, L., Bester, S., Erlbard, H., Finlayson, A., & Zoghaib, C. (2006). *Spørreskjema for nærpersoner. Communicative Effectiveness Index (CETI) på norsk* (L. Haaland-Johansen, M. Lind, & L. Hammersvik, translation). Oslo: Bredtvet kompetansesenter. (Original published 1989).
- Mandell, A.M., & Green, R.C. (2014). Alzheimer's disease. In A.E. Budson & N.W. Kowall (Eds.), *The handbook of Alzheimer's disease and other dementias* (pp. 3–91). Chichester: Wiley Blackwell.
- Mendez, M.F., Perryman, K.M., Pontón, M.O., & Cummings, J.L. (1999). Bilingualism and dementia. *Journal of Neuropsychiatry and Clinical Neuroscience*, *11*, 411–412.
- Moen, I., Simonsen, H.G., Øksengård, A.R., & Engedal, K. (2004). Perception of the Norwegian word tones in patients with Alzheimer's disease (AD). In *Proceedings of the 2004 IALP Congress*. Downloaded from <http://urn.nb.no/URN:NBN:no-21878>.

- Müller, N. (2010). Dementia. In J.S. Damico, N. Müller, & M. Ball (Eds.), *The handbook of language and speech disorders* (pp. 600–625). Malden, MA: Wiley Blackwell.
- Perkins, M. (2007). *Pragmatic impairment*. Cambridge: Cambridge University Press.
- Reilly, J., Troche, J., & Grossman, M. (2014). Language processing in dementia. In A.E. Budson & N.W. Kowall (Eds.), *The handbook of Alzheimer's disease and other dementias* (pp. 336–368). Chichester: Wiley Blackwell.
- Sacks, H. (1992). *Lectures on conversation*. Oxford: Blackwell.
- Sacks, H., Schegloff, E.A., & Jefferson G. (1974). A simplest systematics for the organization of turn-taking for conversation. *Language*, 50, 696–753.
- Schegloff, E.A. (2007). *Sequence organization in interaction. A primer in Conversation Analysis. Volume 1*. Cambridge: Cambridge University Press.
- Schiffrin, D. (1987). *Discourse markers*. Cambridge: Cambridge University Press.
- Sidnell, J. (2011). *Conversation Analysis. An introduction*. Oxford: Wiley-Blackwell.
- Simmons-Mackie, N.N., & Damico, J.S. (1997). Reformulating the definition of compensatory strategies in aphasia. *Aphasiology*, 11, 761–781.
- Simonsen, H.G., & Lind, M. (2002). Past tense expression in a Norwegian man with Broca's aphasia. In F. Windsor, M.L. Kelly, & N. Hewlett (Eds.), *Investigations in clinical phonetics and linguistics* (pp. 45–56). Mahwah, NJ & London: Lawrence Erlbaum Associates.
- Simonsen, H.G., Moen, I., Øksengård, A.R., & Engedal, K. (2004). Processing of verbal morphology in Norwegian speakers with Alzheimer's disease (AD). In *Proceedings of the 2004 IALP Congress*. Downloaded from <http://urn.nb.no/URN:NBN:no-21877>.
- Storey, J.E., Rowland, J.T., Basic, D., Conforti, D.A., & Dickson, H.G. (2004). The Rowland Universal Dementia Assessment Scale (RUDAS): A multicultural cognitive assessment scale. *International Psychogeriatrics*, 16, 13–31.
- Strand, B.H., Tambs, K., Engedal, K., Bjertness, E., Selbæk, G., & Rosness, T.A. (2014). Hvor mange har demens i Norge? *Tidsskrift for Den norske legeforening*, 134, 276–277.
- Svennevig, J. (2004). Other-repetition as display of hearing, understanding and emotional stance. *Discourse Studies*, 6, 489–516.
- Tarone, E. (1980). Communication strategies, foreigner talk and repair in inter-language. *Language Learning*, 30, 417–431.

Appendix: Transcription conventions

- (.) Micro pause
- (0.2) Timed pause
- [] Overlapping speech
- () Uncertain transcription
- (()) Non-verbal actions
- Under Emphasis
- hh Breath or laughter
- .hh Inbreath
- = Latched speech, continuation of talk
- :: Elongated speech, a stretched sound