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Spatiotemporal arrangement of objects in activities with people with dementia

Ali Reza Majlesi, Anna Ekström and Lars-Christer Hydén

Abstract

Purpose: This study shows how the spatial organization of objects and their use may impact locally produced order of activities and how that can affect the accomplishment of everyday activities by people with dementia.

Methods: The study is based on ethnomethodological conversation analysis of eight and a half hours of video recordings in three different settings. Eighteen sequences of activities identified were multimodally transcribed and analyzed.

Results: The availability or non-availability of objects, their arrangements and manipulations play a crucial role in the management of the order of activities and may present both challenges and facilitations for people with dementia. The organizations of objects directly influence the order of the activity, and the objects’ potential use may afford actions that deviate from the trajectory and the order of the main activity.

Conclusions: One of the significant uses of objects is how they contribute to the perceptual field where attention is organized for building actions. Participants in activities modify the perceptual field by manipulating objects in the material surrounds in response to the relevancies resulting from the unfolding activities. Therefore, spatial contingency is significant in the accomplishment of activities by people with dementia. As it is not self-evident that verbal instructions may result in the instructed actions accordingly, the rearrangement of objects and making them timely available to people with dementia may increase the possibilities of keeping the order of the activities intact.

Introduction

This study is about the spatiotemporal organization of artifacts in activities involving people with dementia. Studies of human interaction have demonstrated the central role of the spatial and temporal configuration of artifacts in the immediate physical environment of activities (e.g. [1–5]). Artifacts are situated resources whose organizations are used to manage social activities [6,p.22] and often constitute grounds for activities, as shared objects for mutual attention, and as constitutive to the meaning and intelligibility of social actions [7]. Artifacts are, thus, integrated parts of the practical as well as the semiotic field [7]. They serve to anchor referential activities, e.g. helping to coordinate deictic references through the spatial organization of the bodies of the interactants within a physical environment [1,7–9]. Further, the specific organization of artifacts can also serve as an external memory support [10] and afford certain actions [11,12] as relevant for the purposes of particular activities.

Although social activities are anchored in a material context, this does not, however, mean that a given spatial arrangement of artifacts indicates only one specific action sequence, but rather many possible routes. In other words, in what order artifacts are to be used is not so much guided by the things in themselves, but rather by social practices and habits [13,14]. There is, therefore, a dynamic aspect in the relation between the spatiotemporal organization of objects and actions.

In this study, we focus on how the spatial organization of objects, their use and manipulation may impact locally produced order of activities and the accomplishment of everyday activities by people with dementia. Living with dementia, particularly late stage dementia, means, among other things, that some of the cognitive and communicative resources for displaying the meaning of objects in and beyond the immediate setting, are challenged. Therefore, it may be difficult for people with late stage dementia to deal with material objects as part of ongoing activities and they may need support and guidance from caregivers or co-interactants to know what to do with objects at hand.

The arrangement of objects in activities involving people with dementia

People living with dementia, especially with Alzheimer’s disease (AD) with their difficulties using their cognitive resources [15] face also communicative challenges displaying their...
understanding of the use of material objects in relation to the projected action sequence. That is, they have difficulties grasping a chain of events and how an object is sequentially and temporally placed as relevant within that chain [15–17]. Thus, people with AD have problems with what the phenomenologist Goldstein called the “abstract attitude” to the surrounding world: the ability to “transcend the immediately given situation, the specific aspect or sense impression” [16, p.3]. The abstract attitude entails that in order to take part in activities that are based on shared plans, a person must be able to display the realization for the various possibilities in the surrounding world; i.e. an understanding of the meaning of certain objects and their relevance in relation to the trajectory of an immediate, a future or a planned activity. It seems to be the case that persons with AD tend to perceive and approach objects not in terms of their applicability in the trajectory of planned or possible activities, but only as part of an action that is close at hand. In Goldstein’s terms, they adopt “a concrete attitude” which implies that the individual’s action and thinking is “directed by the immediate claims which one particular aspect of the object or of the outer-world situation makes” [16]. In other words, it is the immediate affordance of the objects that will direct the individual’s actions.

This may result in situations in which a person operates on objects and makes actions that are not compatible or in consistence with the current sequence of actions or planned activity. As a consequence, especially people living with later stage dementia will be dependent on “healthy persons” to scaffold activities in order to take part in joint activities like baking [18], and doing personal hygiene [19], or storytelling [20]. On the whole, the mundane practices of arranging and rearranging objects in the physical environment seem to be challenging for people with dementia [17,21].

Studies on the use of objects by people with dementia have typically focused on individuals and if and how they can manage mundane material objects on their own, for instance making coffee [22]. Other studies have described the handling of mundane material objects as part of everyday activities performed together with others [23]. Nonetheless, although there are studies about the artifacts and social practices [24], studies from an interactional perspective on the relation between the spatial organization of objects and the sequential organization of the activities involving people with dementia are still scarce [17,18].

In this study, we intend to add to the research by showing the significance of spatiotemporal configuration of objects in interaction and the significance of the availability of objects and their use for people with dementia, in carrying out some practical tasks. Focus is on how objects are arranged and manipulated in the settings and timely made available to people with dementia in relation to the sequence of events. By drawing on ethnomethodological conversation analysis [5,25–27], we provide a detailed analysis of five examples in which people with dementia are engaged in joint activities with other persons and where the co-interactants (i.e. “the healthy persons”) indicate some troubles with the ongoing activity. We will then demonstrate how such difficulties may have their grounds in the organization of objects and how these difficulties are managed by arranging and rearranging the working space and providing instructions.

Method and data
In order to investigate the details of the studied activities, we make use of ethnomethodological conversation analysis in form of a theory of practice in which human actions are considered to be observable and reportable, sequentially and temporally ordered, situated and contextualized, social and interactional, embodied, accountable, and co-operative [3,5,25–27]. Actions are embedded in a particular setting that also encompasses a focal event within its immediate physical environment at a particular time and place [3,28].

We specifically consider the impact of spatiotemporal configurations of objects in daily activities on the accomplishment of joint activities involving people with dementia. We use a data-driven, multimodal conversation analytic (CA) methodology [3–5,7,29] by which we study the details of activities of people with dementia by attending to the moment-by-moment temporal and sequential organizations of those video recorded activities [27]. The transcription of talk [30] and other embodied conduct are used for the analysis of the sequences of interactions [3–5,31].

Our data are drawn from three different datasets: (a) a home environment where a person with dementia lives with his spouse, (b) a residential care home where people with dementia live in an apartment complex, and (c) a daycare center where people with dementia spend time during the day under the supervision of professional caregivers.

The data particularly used for this study consist of about three and half hours of video recordings from a home environment, one hour of recording from a residential care home, as well as around four hours of video recordings from a daycare center, all located in two relatively large cities in Sweden. We have video recorded daily activities such as cooking or eating together. For this study, we have focused on four people with dementia: one at the home environment, Tore, one at the care home, Terese, and two others in the daycare, Eva and Gunilla. At the time of recording, Tore is 79, diagnosed with AD, Terese, is 89, diagnosed with vascular dementia and AD; Eva and Gunilla are respectively 57 and 62 at the time of recordings, both with early onset dementia, diagnosed with AD. All names are pseudonyms.

Results
To collect sequences, we focused on how the configuration of working space, the arrangement of objects, and their relevance and timely use in tasks had an observably impact on the activities involving people with dementia. We identified all sequences where people with dementia perform a task in which they are engaged with objects and their actions involving the objects are oriented to by their co-interactants as problematic, which are, then, observably and reportedly amended by the co-participants. The amendments involved
instructions and/or the rearrangement of the physical organization of objects. However, sequences in which people with dementia do not or cannot accomplish activities due to motor skill problems are excluded from our dataset. The analysis of our dataset resulted in 18 sequences which fit the criteria. Out of these, we have chosen five cases to present in this article. The first two examples deal with situations where the spatial organization of objects is set and guided by social conventions (dinner situations). The next two examples deal with a more dynamic situation where the spatial organization of objects changes in a less conventional and more unpredictable way as the activity progresses. The final example illustrates a situation where the introduction of a new object creates uncertainty about the role and meaning of this object.

A set table and set actions

Example 1 is from an activity at a daycare center. During the whole activity, together with other care-receivers and caregivers, Gunilla, 62, diagnosed with early onset AD is preparing food and dessert. At the time of the presented sequence, several people are helping out to set the table for having dessert together. The dessert is on the kitchen table and the staff are waiting for the coffee to brew so that they can sit together and have the dessert. Gunilla, having helped out in the kitchen, has now sat down at the table where the bowl of dessert is placed and begins to serve herself the dessert. It is at this time the excerpt unfolds. In the transcripts, we describe embodied acts in separate lines with grey marks and also present some observer’s notes in double parentheses. The exact moments of the occurrence of embodied actions during the stream of talk are shown with symbols such as asterisks and hash signs (for transcription conventions, see the Appendix):

Anette, a staff member, who watches over the kitchen activities, asks Gunilla not to start serving the dessert by telling her to wait for a bit (line 1). After Gunilla provides an account for what she is doing (line 3), still serving the dessert (Figure 1), Anette takes the bowl (line 5); at first, she moves it away from Gunilla (line 8) and then takes it away and puts it somewhere else (line 15).

When producing line 01, Anette is placed at the counter a few steps away from the table where Gunilla is seated. Anette simultaneously moves toward Gunilla at the table. As she reaches the table, she provides a candidate account for why Gunilla has started to eat the dessert while grabbing hold of the bowl and placing it a bit away from Gunilla (line 13). Both Gunilla and Linda (the visitor recording the events) respond with laughter framing Gunilla’s actions as something out of the ordinary (lines 10, 11). When Anette provides an account for why she has asked Gunilla to wait (line 13) Anette displays an orientation toward a convention, namely, waiting for the coffee before starting to have the dessert and, potentially for everyone to join. Such conventions, however, are not available from Gunilla’s immediate context, and require that the larger activity framework is taken into account. Similarly, they also require an ability to remember that the dessert was planned for a larger group and that the coffee is brewing in the kitchen— the social convention of “waiting for everyone else” is not visible in the spatial organization of the table.

When Anette asks Gunilla to “wait a bit” (line 01), Gunilla does not follow the instructions; she simply takes part of the dessert that she finds available, and her action...
results in a divergence from the normative trajectory of the main activity, hence producing correctable actions by Anette as she tries to maintain the social order of the activity. As Gunilla does not stop the activity of plating/serving the dessert on her own plate, Anette grabs hold of the bowl of dessert and moves it, at first on the table, only a bit away from Gunilla and then to the counter top, out of sight and reach for Gunilla, changing the spatial arrangement of the available objects on the table and thereby changing the courses of action sequences that the immediate context makes available. By manipulating the physical environment, potentially in coordination with verbal instructions, Anette organizes a spatial organization that does not afford the activity of eating dessert and makes it possible for Gunilla to follow her instruction and "wait a bit" before starting to eat the dessert.

Example 2 comes from a care home in which Terese, the resident who is diagnosed with both vascular dementia and AD, is provided with lunch and dessert. While she was eating her lunch, she was also served dessert which was put in a bowl beside her plate of food. The staff routinely announce what they bring to the table. They also announce to everybody the content of the food or dessert and ask the residents whether they would like to have some or not. This is also the case for Terese, who has agreed to have the dessert. However, despite the fact that the bowl of dessert was put on the table close at hand, and thus reachable, and that Terese received the instruction that she could have dessert when she had finished her food, she did not touch the dessert. Upon this, one of the caregivers, Edina, asks Terese if she is done with her meal or would like to eat more. It seems that Terese is only engaging with the objects right in front of her. When Edina asks if Terese intends to eat more (line 01), Terese replies that there is nothing more to eat (line 03). As the plate in front of her is nearly empty, Terese seems to draw the conclusion that there is nothing more for her to eat even though there is a bowl with dessert fully visible on her left side on the dining table. When Ali, the visitor, pulls the plate of food aside and places the bowl of dessert in front of Terese, her attention is drawn to the dessert (line 12, Figure 2(a and b)). This happens at the same time that Boonsri explains that Terese can eat her dessert if she is done with her food (line 09). Ali’s action (line 12) is then followed by a confirmation by Boonsri (line 13) who watches what Terese does. As the bowl of dessert is placed in front of her, Terese begins to eat her dessert (line 14). It seems that Terese helps herself to the dessert only when the dessert is right in front of her. The rearrangement of the plate and the bowl seems to make the bowl a relevant artifact in Terese’s immediate material surround and, thus, the focal visual object, which now easily draws Terese’s attention to the dessert and she initiates eating it without further assistance from the caregivers.

Both examples exhibit how availability or non-availability of objects, and their placements in the immediate material surround may play a crucial role in the management of the order of activities and also present challenges to people with dementia. While in Ex.#01, Anette, in response to Gunilla’s observed deviation from the preferred normative procedure of the activity, takes the bowl of dessert away from her, in Ex.#02, Ali brings the bowl of dessert closer to Terese to provide her with the resource to act on. In other words, the spatial contingency of focal objects in the environments are modified either to prevent the person with dementia from diverging from or enable to maintain, the order of the activity.

**Dynamic aspects of artifact organization**

Examples 3 and 4 come from the same daycare center as in Figure 1. The recorded event is an extended activity...
including preparing food, cooking and eating it, followed by preparing and eating dessert. Example #03 exhibits a short episode of the event in which two people with dementia, Eva and Gunilla, together with a staff member, Anette, are preparing the ingredients to make a Brussels sprouts gratin (see 19 for the full description and analysis of the whole activity). There are two packs of Brussels sprouts in nets on the table, as well as a colander and a pot. The colander is placed right in the middle of the table in order to put the halved Brussels sprouts in, and the pot is just next to it (Figure 3).

The sequence begins when Anette demonstrates for Gunilla how to remove parts of the Brussels sprouts that are considered bad, and then how to cut them in half (lines 1–5). Anette and Gunilla put their halved Brussels sprouts in the colander and Eva helps out by taking them out of the nets and providing Anette and Gunilla with the Brussels sprouts to cut. This makes the colander a designated place to collect all halved Brussels sprouts in. The order of actions has now emerged, been established in observable conduct and in the displayed understanding of the participants: Eva takes the Brussels sprouts out of the nets and hands them over to Gunilla and Anette, and they put their halved Brussels sprouts in the colander (line 5). However, Eva also puts the unsliced Brussels sprouts in the colander instead of leaving them with Gunilla and Anette on the table to cut; as soon as Eva puts the Brussels sprouts in the colander, Anette takes them away (line 6). This eventually leads to Anette’s directly explaining to Eva the order of actions, and asking her to wait until the Brussels sprouts are cut into halves before putting them in the colander (line 12).

Whereas Gunilla receives an instruction to cut the Brussels sprouts into halves (lines 1–5), Eva, does not receive any instruction as to how to help with the procedure. As Anette and Gunilla begin to cut the Brussels sprouts into halves (line 5), Eva starts to provide them with the Brussels sprouts from the net close to her. Nonetheless, she puts unsliced Brussels sprouts in the colander that is also used by Anette and Gunilla to gather halved Brussels sprouts (line 6) (Figure 4). The chain of actions, (a) taking the Brussels sprouts out of the nets, (b) removing the bad parts, (c) cutting them in half, and (d) putting them in the colander, is disrupted as Eva puts unsliced Brussels sprouts in the colander. Eva is not leaving the Brussels sprouts at the “right” place. So, Anette first instructs Gunilla to remove the bad parts and leave them to her to cut in half (line 07). Then, she calls Eva’s attention to the fact that the Brussels sprouts should be cut in half before being left in the colander (line 12). She gives the directives without directly pointing out the mistake made by Eva. Her account for asking Eva to stop putting the Brussels sprouts in the colander is that Eva is too fast in her doing (line 14). Eva’s response to this is of interest: she highlights the fact that she thinks that the Brussels sprouts should be washed first, or at least she would begin with washing them (line 15). Thus, Eva provides an account for her action, which signals that she follows a different order in the course of the activity when she says, “that is not the way I do it” (line 19).

So, what seems to afford Eva’s action is the colander itself and its availability and use in the activity. As a colander is a tool especially used to wash food and drain off liquid from, it is not very surprising that Eva leaves unsliced Brussels sprouts in the colander to wash in the first place (she provides this as an account for her actions, line 15). In other words, the colander is a situated resource, potentially used for washing, available at the time of the activity, and is thus used by Eva, though in a different manner than Anette has intended. The result is that Eva’s action and her use of the colander do not tally with the organization of the overall activity and change the local production of order. The availability of the colander, together with Eva’s possible previous experiences of using a colander, creates an artifact organization that seems to afford the action of putting Brussels sprouts in the colander immediately after having removed the bad parts. The solution to uphold the routine of the activity is that Anette first verbally corrects Eva’s action, then stops her action directly, and provides her with a description of what should be done (line 17), which is also complied to by Eva, although insisting on her own way of handling the procedure (line 19).

Immediately after Anette has reestablished the order in the activity in the previous sequence, we observe in Example 4 how a pot on the table, its availability and accessibility to the participants influence the organization of order.

Gunilla who is still cutting the Brussels sprouts into halves, chooses to put the halved Brussels sprouts in a pot placed on the table instead of the colander. Once again, the activity order Anette suggested, is disrupted. As Gunilla stretches her hand toward the pot to put the halved Brussels sprouts in (line 22), Anette first keeps the pot slanted for Gunilla to be able to put the halved Brussels sprouts there (line 24; Figure 5a), but also explains that the halved Brussels sprouts are supposed to be put in the colander (line 25). She then takes out the Brussels sprouts herself from the pot and puts them back in the colander (line 27).

**Figure 3.** People with dementia, Gunilla and Eva together with their caregivers, Anette and Inger, are preparing ingredients for the Brussels sprout gratin.
Figure 4. EV uses the colander to have her non-halved BS rinsed later but AN uses it to gather halved BS.

Figure 5. (a) GU puts her halved BS in the pot instead of the colander; AN takes them away. (b) AN puts the pot on a board away from the participants in the current activity.
The correction is acknowledged by Gunilla (line 28) showing an orientation toward the colander as the right place to put the halved Brussels sprouts (line 28). Despite this acknowledgment, Anette now moves the pot away, and leaves it on a board of a base cabinet away from Gunilla and Eva (line 30; Figure 5b). Anette not only corrects Gunilla’s action, but she also does a preemptive move to prevent possible future mistakes by changing the artifact organization on the table and making sure that the pot is not within the reach and sight of Gunilla and Eva.

This example too shows how the spatiotemporal arrangement of physical objects, may afford possibilities for types of actions that are sometimes incongruent with the order of the current activity. Having both a pot and a colander on the table creates possibilities to put the halved Brussels sprouts in either of them. This seems to give rise to a potential confusion for a person with memory problems to keep the order of where the halved Brussels sprouts should go. The solution to the problem for Anette is to eliminate one of the possibilities by removing the pot from the scene. This rearrangement of the environment results in the accomplishment of the rest of the activity without further corrections.

**Conflicts**

Example 5 comes from a cooking activity at home. Tore, 79, diagnosed with AD, and his wife, Ellen, are cooking food together. The excerpt begins when Ellen offers Tore a piece of chocolate to eat while he is standing at the stove and stirring a stew in a saucepan.

The sequence begins when Ellen fetches a candy bar and offers a piece of it to Tore (line 1) when he is stirring a stew at the stove (line 2; Figure 6a). Ellen’s action and the introduction of a new object is, however, not taken by Tore as an invitation to eat the offered chocolate. Instead, Tore asks Ellen whether they are going to melt the chocolate in the stew (line 13). When Ellen presents the chocolate, Tore tries to include the new object in the ongoing activity of making the stew. Previous to this sequence, Tore has been handed ingredients to include in the stew and Ellen has also herself put chili and garlic into the saucepan. The local history of the activity together with the contextual configuration of objects (the saucepan, the ladle, the stove and the boiling stew) seem to provide an environment where Tore understands the new object (the chocolate) as yet another ingredient for the stew. Even though Ellen accompanies her introduction of the new object with a verbal commentary, the material aspects of the activity seem to override this framing of offering the chocolate to Tore.

In response to Tore’s question, Ellen explains that the chocolate should be eaten (line 15). Although Ellen’s statement is not a directive to Tore that he should eat the chocolate, Tore’s response shows that he now understands Ellen’s action as an offer: when receiving the chocolate (line 18), he first thanks Ellen for it (line 19), then breaks the chocolate into two pieces, eats one piece (line 22, Figure 6b), and puts the rest on the counter close to the stove. However, again, after less than a minute, when Ellen turns down the heat on the stew (line 24), Tore picks up the rest of the chocolate (line 26), asks once more whether they are going to put it in the stew (line 27; Figure 6c), while he has brought the chocolate over the saucepan (line 28). This time, the rejection is more emphatic and comes with a raised voice, accompanied with laughter (line 29) as Ellen also moves her hand over the saucepan (perhaps as a sign of preventing him from putting the chocolate in the stew) (line 30). This pre-empts Tore’s possible action to add the chocolate to the stew. Tore then puts the chocolate away (line 31).

The challenging issue seems to be how to deal with objects that potentially imply different orders of action, something that also has been observed in other studies of joint activities involving people with dementia [17]. It seems to be difficult for people with dementia to maintain the order of multi-activity settings when two or more activities are performed at the same time or when the activities consist of different consecutive tasks (see Ex.#01–04). What can be observed is that making an object available to Tore, and leaving an object in his relative proximity seem to give him the opportunity to integrate the object in his current activity, namely putting chocolate into the stew that he is stirring.

An object at his disposal may thus invoke two possibilities: either to get distracted from the main activity and focused on that object to begin a new activity with it, or to integrate that object in the current activity. This suggests that the spatial organization of objects has a crucial role in the way that those activities are conducted and directly influence the order of the activity. Further, their potential use may afford actions that deviate from the trajectory and the order of the main activity.

**Concluding discussion**

The spatial arrangements of artifacts are constitutive parts of the ecology of human social interaction [6]: as part of the contextual configurations of the activities they are constitutive to the organization of human actions [3]. As shown in this study, the spatial organization of artifacts contributes to the understanding of an activity and guides the way participants build actions. Participants in activities modify the perceptual field by manipulating objects in the material surrounds in response to the relevancies of the unfolding activities. The changes in the spatial organization of objects thus change the contextual details that are used as resources to have a grasp of an activity and what should or should not be conducted accordingly. The understanding of a next relevant action is thus achieved through a dynamic adjustment of contextual details including the arrangement of objects in the foreground and the background. The contingencies occasioned by the changes in the use of objects change the basic presuppositions and inferential procedures and thus the understanding of what would be a relevant next action. The character of action which is grasped as a “gestalt contexture”
will change if the relation between an action and the material world and its normative context gets modified [32].

In activities involving people with dementia the spatial organization of objects and their re-organization including their availability or unavailability in the relative proximity of the person with dementia, may occasion changes in the gestalt contexture of the actions. Modifying the position of objects in the foreground or the background in a context may result in different understandings of the course of actions. For people with dementia, difficulties in following the order of actions resulting from the changes in the organization of objects, in turn, may result in disruption of joint activities – something that can be amended through the rearrangement of objects.

The spatial arrangement of objects in activities with people with dementia may, thus, alleviate or aggravate a common challenge for people with dementia, namely attending to the course of activities and their temporal organizations. It is often difficult for people with dementia to attend to the thread of the order of events and participate in complex activities if not directed to do one simple task at a time, or not provided with the right artifacts in their due time and place – or provided with artifacts untimely.
Accordingly, it is then noteworthy that the spatial organization of objects may be exploited to help people with dementia in accomplishing their everyday activities. Reorganization and rearrangement of objects in activities may prevent people with dementia from failing to perform a task, or from performing it untimely or undesirably. What this study may recommend is manipulating the contextual configuration of the working place by "limiting the degree of freedom in the task", e.g. by removing an available but irrelevant object in an activity which shield the person with dementia from distraction and help them to be more focused on the ongoing activity [33]. This study also suggests that directing the attention of a person with dementia to an object and making that object available to that person can help people with dementia to recognize the action and the order of the activity, and thus to conduct the expected action. This is made possible by not only giving a verbal instruction, but also by (re)arranging that object to be in the line of vision of people with dementia and within their reach so that the saliency of the object is sensorially noticed and recognized, and thus acted upon.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. The dataset from the daycare center was collected by Assistant Professor Linda Örulv, Linköping University, Sweden.

Notes on contributors

Ali Reza Majlesi, PhD, is a senior lecturer in the Department of Education at Stockholm University. He conducts research on social interaction often in everyday and institutional settings with multilingual participants. His research focuses on embodiment and the ecology of meaning making practices in social activities. He draws on ethnomethodological conversation analysis and multimodal analysis of social interaction. He is also a collaborator with the Center for Dementia Research (CEDER) at Linköping University, Sweden.

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Lars-Christer Hydén received his PhD in Psychology from the Stockholm University, Sweden. His current position is as full professor of Social Psychology at Linköping University, Sweden, and as director of Centre for Dementia Research (CEDER). His research primarily concerns how people with Alzheimer’s disease and their significant others interact and use language as a way to sustain and negotiate everyday life and a sense of self.

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References

Appendix

Transcription conventions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>hh</strong></td>
<td>In-breath.</td>
</tr>
<tr>
<td><strong>xx</strong></td>
<td>Quieter than surrounding speech.</td>
</tr>
<tr>
<td><strong>Capital letters</strong></td>
<td>Louder than surrounding speech.</td>
</tr>
<tr>
<td><strong>&lt;&gt;</strong></td>
<td>Slower than surrounding speech.</td>
</tr>
<tr>
<td><strong>&lt;&gt;</strong></td>
<td>Faster than surrounding speech.</td>
</tr>
<tr>
<td><strong>{ }</strong></td>
<td>Unheard or unclear utterance.</td>
</tr>
<tr>
<td><strong>{ }</strong></td>
<td>Overlapping speech.</td>
</tr>
<tr>
<td><strong>()</strong></td>
<td>Pause in seconds.</td>
</tr>
<tr>
<td><strong>[]</strong></td>
<td>Transcriber's comments or descriptions.</td>
</tr>
<tr>
<td><strong>@@</strong></td>
<td>Smiley voice or face.</td>
</tr>
<tr>
<td><strong>¼</strong></td>
<td>No discernible silence between utterances.</td>
</tr>
<tr>
<td><strong>=</strong></td>
<td>Prolonged speech.</td>
</tr>
<tr>
<td><strong>↑ / ↓</strong></td>
<td>Rising/falling intonation.</td>
</tr>
<tr>
<td><strong>Grey marked lines</strong></td>
<td>Non-verbal action.</td>
</tr>
<tr>
<td><strong>Lines in grey and italics</strong></td>
<td>English translation of the original turn.</td>
</tr>
<tr>
<td>**<em>—</em> or <strong>##</strong></td>
<td>Delimit descriptions of one speaker's actions.</td>
</tr>
<tr>
<td>**<em>—</em> or <strong>##</strong></td>
<td>Action described continues across subsequent lines.</td>
</tr>
<tr>
<td><strong>Action described continues until the same symbol is reached.</strong></td>
<td>Action described begins before the beginning of the excerpt.</td>
</tr>
<tr>
<td><strong>Action described continues even after the excerpt ends.</strong></td>
<td>Action's preparation.</td>
</tr>
<tr>
<td><strong>...</strong></td>
<td>Action's retraction.</td>
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